ENLISTED TECHNICIANS SCHOOL

CLASS OUTLINE
for
BASIC TECHNICIANS

U.S. ARMY & NAVY GENERAL HOSPITAL
Hot Springs National Park, Arkansas

CLASS OUTLINE FOR BASIC TECHNICIANS

Introduction

This class outline for Basic Technicians is intended for use in the basic course given to Medical and Surgical technicians at the Enlisted Technicians School at the Army and Navy General Hospital, and is not meant to be a guide for courses given at similar schools. This book was written originally, and revised several times, while male technicians were taught at the school, but since the training of Womens Army Corps technicians, who now make up the student body, is very similar to the training given to the men, the outline has been found adaptable for the new courses.

The outline is not meant to take the place of the Technical Manual 8-220, but acts as a supplement to it. The references at the top of each class refer to pages in the TM 8-220 which cover similar material to that given in the class. The student is cautioned that much material is given in class which is not in the Technical Manual, and also that there is much in the Manual which is not given in class, but for which the student is held responsible. The questions at the end of each chapter in this book, referred to at the beginning of each class outline, are useful for study and review, and sometimes furnish the source for examination questions.

Blank pages between the printed pages of this outline are for the students' use in taking notes. It is recommended that notes be made in class, as experience shows that information becomes more firmly fixed in the mind in this way. The notes also serve as material for review and study.

This book is given to each student for her personal property.

Hot Springs, Arkansas
January 1944

OWNER'S NAME..

TABLE OF CONTENTS

Part I

TABLE OF CONTENTS

Part II

TABLE OF CONTENTS

HYGIENE AND SANITATION

Communicable Diseases, General ......1 hour

References: TM 8-220, pp. 260 - 262 Questions 1 - 29

- I. Definitions
  - A. Hygiene
  - B. Sanitation
- II. Importance of Hygiene and Sanitation
  - A. In general military mission
  - B. In Medical Department mission
  - C. Historical background
  - D. Differences military and civil environment
- III. Responsibility for Sanitation
  - A. Commanding Officer
  - B. Medical Department
    - 1. Officer
    - 2. Soldier
- IV. Communicable Diseases
  - A. Definition
  - B. Classification according to transmission
    - 1. Venereal
    - 2. Respiratory
    - 3. Intestinal
    - 4. Insect-borne
    - 5. Miscellaneous
- V. Common Terms Used in Communicable Diseases
  - A. Susceptible
  - B. Immune
    - 1. Active immunity, passive immunity
    - 2. Temporary immunity, permanent immunity
  - C. Source of disease
    - 1. Case
    - 2. Carrier
    - 3. Animal
  - D. Case
  - E. Contact
    - 1. Close
    - 2. Remote
  - F. Suspect
  - G. Incubation
  - H. Carrier
    - 1. Incubationary
    - 2. Convalescent
    - 3. Healthy
  - I. Isolation
  - J. Quarantine
    - 1. Absolute
    - 2. Working
  - K. Epidemic

VI. General Control of Communicable Diseases
  A. Diagram of relationship between cases, susceptibles, and transmitting agencies
  B. Control of cases and carriers
  C. Control of transmitting agencies
  D. Control and protection of susceptibles

Venereal Diseases 2 hours

References: TM 8-220, pp. 324 - 327 Questions 30 - 39

I. Features of Important Venereal Diseases
  A. Syphilis
  B. Gonorrhea
  C. Chancroid
  D. Others

II. Important of Venereal Diseases in Army
  A. In time of War
  B. In time of Peace
  C. Prevalence of venereal diseases in civil population

III. Transmission of Venereal Diseases

IV. Control of Venereal Diseases
  A. Control of cases and carriers (Treatment)
  B. Control of transmission
    1. Prevention of exposure by control of prostitution
      a. Regulation of prostitution
      b. Suppression of prostitution
    2. Educational measures
    3. Recreational facilities
    4. Punishment (Army Regulations)
  C. Protection of susceptibles
    1. Mechanical prophylaxis (condom)
    2. Individual chemical prophylaxis
    3. Station chemical prohylaxis

V. War Department Training Film on Venereal Diseases

VI. Discussion of Venereal Diseases

HYGIENE AND SANITATION

Respiratory Diseases . 1 hour

References: TM 8-220, pp. 267 - 270 Questions 40 - 52

I. Brief Discussion of Features of Respiratory Diseases
   A. Germ diseases
   B. Virus diseases
   C. Immunity and susceptibility
   D. Epidemic nature

II. Prevalence of Respiratory Diseases

III. Transmission of Respiratory Diseases
   A. Explanation of droplet transmission
   B. Air
   C. Hands
   D. Food
   E. Mess equipment

IV. Control of Respiratory Diseases
   A. Control of cases and carriers
   B. Control of transmission agencies
   C. Control and protection of susceptible individuals

V. Discussion and Demonstration of Practical Control Features
   A. Bed spacing
   B. Head and foot sleeping
   C. Cubicle construction
   D. Prevention of crowding
   E. Ventilation
   F. Proper heating
   G. Sweeping
   H. Spitting
   I. Covering coughs and sneezes
   J. Personal habits
   K. Drinking cups and towels

Intestinal Diseases 4 hours: 1st hour

References: TM 8-220, pp. 270 - 271, 302 - 309 Questions 53 - 63

I. Brief Discussion of Features of Intestinal Diseases
   A. General symptoms and symptom production
   B. Exit of organisms from body

II. Transmission of Intestinal Diseases
   A. Sewage pollution and distribution
   B. Water
   C. Food
   D. Flies
   E. Fingers

III. Control of Intestinal Diseases
    A. Control of cases and carriers. Isolation precautions
    B. Control of transmitting agencies
        1. Water
        2. Food
        3. Flies
        4. Fingers
    C. Control and protection of susceptibles

IV. Effectiveness of Control Measures
    A. Prevalence of intestinal diseases
    B. Intestinal diseases an "index of sanitation"

V. Practical Features of Mess Sanitation in Control
    A. Sanitation of building
    B. Care of tables, benches, floors
    C. Food inspection
    D. Food storage
    E. Washing of dishes and cooking utensils
    F. Preparation and serving of food
    G. Food handler inspection and control
    H. Garbage and other waste disposal

Intestinal Diseases 4 hours: 2nd hour

Water Supply and Purification

References: TM 8-220, pp. 271 - 275 Questions 64 - 74

I. Importance of Water in Intestinal Disease Transmission
    A. Pollution of water
    B. Uselessness of inspection of water to determine purity

II. Water Sources

III. Characteristics in Selection of Proper Water Source
    A. Quantity requirements
        1. Permanent post
        2. Field camp (semi-permanent)
        3. Bivouac
        4. Emergency
    B. Purity
    C. Turbidity
    D. Hardness

IV. Responsibility for Supply and Purification of Water
    A. Unit Commanders
    B. Quartermaster Corps
    C. Corps of Engineers
    D. Medical Department

- V. Field Sterilization and Testing of Water
  - A. Water sterilizing bag - chlorine sterilization
    - 1. Discussion and demonstration of sterilization
    - 2. Discussion and demonstration of testing for residual chlorine content
  - B. Water sterilizing bag - emergency use of iodine
    - 1. Discussion of use of iodine
    - 2. Disadvantages of iodine in water sterilization
  - C. Canteen sterilization
    - 1. Use of chlorine - calcium hypochlorite tubes
    - 2. Use of chlorine - individual pellets of calcium hypochlorite
      - a. Ordinary water
      - b. Turbid water
    - 3. Emergency use of iodine
  - D. Boiling
  - E. Sterilization of water with pellets in larger containers
  - F. Use of smell and taste of water in determination of residual chlorine content

Intestinal Diseases 4 hours: 3rd and 4th hours

Waste Disposal

References: TM 8-220, pp. 275 - 293 Questions 75 - 94

- I. Reasons for Waste Disposal
- II. Classification of Wastes
  - A. Human wastes
    - 1. Urine
    - 2. Feces
  - B. Kitchen wastes
    - 1. Solid (garbage)
    - 2. Liquid (grease and greasy wash water)
  - C. Miscellaneous wastes
    - 1. Manure
    - 2. Rubbish and trash
    - 3. Wash water
- III. Disposal Conditions
  - A. March
  - B. Bivouac
  - C. Semi-permanent field camp
- IV. Demonstration and Discussion of Practical Features in Waste Disposal

HYGIENE AND SANITATION

Insect-borne Diseases 1 hour

References: TM 8-220, pp. 294 - 302, 309 - 324 Questions 95 - 109

- I. Introduction
  - A. Definitions
    - 1. Vector
    - 2. Intermediate host
  - B. Principal insect-borne diseases and vectors
  - C. Review of life cycle of typical insect

- II. Mosquito
  - A. Life cycle
  - B. Control measures
    - 1. Semi-permanent locations
      - a. Group methods
      - b. Individual control measures
    - 2. Temporary field conditions
      - a. Group control methods
      - b. Individual control measures

- III. Louse
  - A. Varieties
  - B. Diseases caused
  - C. Importance of lice in war time conditions
  - D. Control of lice (delousing program)
    - 1. Bathing and shaving
    - 2. Delousing clothing and equipment
    - 3. Disinfesting beds and latrines
    - 4. Issue of clean clothing and equipment

- IV. Tick
  - A. Diseases caused
  - B. Control measures
    - 1. Control of intermediate host
    - 2. Individual tick control measures in field

- V. Flea
  - A. Diseases caused
  - B. Control measures
    - 1. Rat-proof construction
    - 2. Poisons
    - 3. Ship quarantine and fumigation

- VI. Other Insect Pests
  - A. Bedbugs
  - B. Roaches
  - C. Ants

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Miscellaneous Diseases 1 hour

References: TM 8-220, pp. 328 - 331 Questions 110 - 116

I. Epidermophytosis
    A. Synonyms
    B. Nature of disease
    C. Factors in transmission
    D. Control measures
        1. Individual measures
        2. Group methods of contact prevention
        3. Treatment of cases
    E. Common treatment measures

II. Scabies
    A. Causes and symptoms
    B. Control
        1. Personal hygiene
        2. Treatment of cases
    C. Effective treatment methods

III. Plant Poisoning
    A. Types of external plant poisoning
    B. Nature of diseases
    C. Course and symptoms
    D. General treatment
    E. Protective and preventive measures

IV. Tetanus
    A. Nature of disease
    B. Control
        1. Treatment of wound
        2. Anti-tetanus serum
        3. Tetanus toxoid

V. Rabies

VI. Yaws

Personal Hygiene 1 hour

References: TM 8-220, pp. 262 - 267, 331 - 333 Questions 117 - 122

I. The important elements in personal hygiene will be demonstrated and discussed, chiefly in the War Department Training Film on Personal Hygiene. Particular attention will be paid to care of the feet.

HYGIENE AND SANITATION

Questions

I. Define hygiene.

2. Define sanitation.

3. Why is sanitation of great importance in a military establishment?

4. What is the general mission of the Medical Department?

5. List the ways a military establishment differs from a civil establishment in factors which influence the spread of disease.

6. Who is responsible for sanitation in any organization?

7. To whom is the authority for sanitation usually delegated in any organization? Why?

8. Define communicable diseases.

9. Name the classes of communicable diseases on the basis of methods of transmission.

10. Define respiratory diseases. Name two examples.

11. Define venereal diseases. Name two examples.

12. Define intestinal diseases. Name two examples.

13. Define insect-borne diseases. Name two examples.

14. Define miscellaneous diseases. Name two examples.

15. Define a case, with respect to communicable disease.

16. Define close contact. Define remote contact.

17. Define immunity.

18. Define susceptibility.

19. Define suspect.

20. Define incubation period, with regard to communicable disease.

21. Define epidemic.

22. Define carrier. Name the important classes of carriers, and tell how they differ from each other.

23. Define isolation.
24. Define quarantine.
25. What is the difference between absolute and working quarantine?
26. Why is it important to know the incubation period of a communicable disease?
27. What do we mean by transmitting agency in communicable disease?
28. Name several examples of transmitting agencies.
29. Describe the transmission and control of communicable diseases.
30. Name the important venereal diseases.
31. Why is knowledge of venereal diseases important in the Army?
32. How are venereal diseases transmitted?
33. What are the general means of controlling venereal diseases?
34. What means do we use for preventing contact or exposure in attempting to control venereal diseases?
35. How do we try to protect a susceptible individual, to keep him from getting venereal disease after he has been exposed?
36. What is the best method of prophylaxis?
37. How soon after intercourse should one report for prophylaxis?
38. Outline the steps in the procedure of chemical station prophylaxis.
39. How may a soldier be punished for contracting venereal disease?
40. Define respiratory diseases. Name six examples.
41. Why are respiratory diseases important in the Army?
42. Name the transmitting agencies for respiratory diseases.
43. Give several ways of preventing air-borne transmission of respiratory diseases.
44. How would you prevent transmission of respiratory diseases by hands?
45. How would you control food and mess equipment to prevent transmission of respiratory diseases?

HYGIENE AND SANITATION

46. How are susceptible individuals protected against respiratory diseases?

47. Describe proper ventilation in barracks buildings.

48. Describe two ways of making cubicles.

49. Describe the proper arrangement of beds in barracks for maximum protection against respiratory diseases. What is the shortest distance allowance between heads of sleepers?

50. How many beds should ordinarily be placed in a room with floor space (clear) of 60 by 30 feet? How many could be placed in this room in an emergency? How many beds should be placed in this room if it were to be used for a hospital?

51. Describe the proper sweeping of a barracks room.

52. Why is bedding aired? How often should this be done?

53. Define intestinal diseases. Name five examples.

54. Explain the statement "The amount of intestinal diseases in a command is an index of the sanitation of that command."

55. Name the transmitting agencies of intestinal diseases.

56. How is control of food brought about to prevent food from being a transmitting agent of intestinal diseases?

57. How are hands controlled to prevent transmission of intestinal disease?

58. Who is responsible for the sanitation of the mess?

59. How is responsibility for mess sanitation usually delegated?

60. Describe proper storage of perishable and non-perishable foods.

61. Why are mess utensils and mess tables cleaned carefully?

62. What are the essential purposes for dishwashing?

63. Why are food handlers examined? How often must they be examined? May they be examined at other times?

64. Why is pure water important in the Army?

65. What general characteristics determine the selection of a water source?

HYGIENE AND SANITATION

66. Describe briefly the approximate quantities of water required in a permanent post, in a semi-permanent field camp, and in bivouac.

67. List the sources of water.

68. Who is responsible for water supply? What is the function of the Medical Department in connection with water supply?

69. Describe the Lyster bag.

70. Describe the field sterilization of water in the Lyster bag with chlorine. How may iodine be substituted for chlorine in emergency?

71. Describe the testing of chlorinated water for residual chlorine.

72. Draw a diagram to show how you would mark a stream for all uses of water for an organization camped nearby.

73. Describe all the ways of sterilizing water in the canteen.

74. Describe the sterilization of water not in the canteen nor in the Lyster bag. What is a rough test for the amount of residual chlorine in water?

75. Classify wastes.

76. Describe the proper disposal of human urine a) on the march, b) in bivouac, and c) in a one month's field camp with sandy soil. How would urine be disposed of in a field camp of one month where the soil is of clay type?

77. Describe the disposal of human feces in the various situations listed in question 76, above.

78. Describe the construction and care of a straddle trench.

79. Describe the closing of a straddle trench on leaving the area.

80. Describe the construction of a urine soakage pit.

81. Describe the construction of a deep pit latrine, with flyproofing.

82. Describe the routine care of a latrine box.

83. Describe the closing of the pit of a deep pit latrine.

84. What general precaution must be observed in selecting a site for the location of a latrine and soakage pit for urine?

85. How is wash water disposed of in the absence of a sewage system?

HYGIENE AND SANITATION

86. How is solid kitchen waste separated from liquid waste?

87. Name the common methods of garbage disposal.

88. Describe the construction and operation of a simple type of field incinerator suitable for company use.

89. When garbage is sold, what is the most important consideration to be observed in the contract?

90. How is garbage disposed of on the march and in overnight camp?

91. How are liquid kitchen wastes disposed of in semi-permanent field camps? Describe the construction of simple grease traps.

92. Why are two kitchen soakage pits necessary instead of just one?

93. How is manure disposed of? Why is manure disposal important?

94. Describe rubbish disposal, and the precautions taken against breeding of mosquitoes in rubbish dumps.

95. Define insect-borne diseases. Name four examples.

96. Define vector. Define intermediate host.

97. Describe the typical life cycle of the insect.

98. What are the general control measures of insect-borne disease?

99. Describe the measures of mosquito control.

100. What important diseases are caused by lice? Why are louse-borne diseases important in war time?

101. Name the varieties of lice.

102. Name the steps in a delousing program.

103. Describe briefly the disinfestation of clothing and equipment.

104. Describe the eradication of head lice.

105. Describe disinfestation for public lice.

106. What important diseases are tick-borne? How is the tick controlled?

107. What important diseases are carried by fleas? What is the intermediate host of the flea? How is the flea controlled?

108. Why are ants, bedbugs, and cockroaches important to man? How may they be controlled?

109. Describe the eradication of the house-fly.

110. Describe the control of epidermophytosis.

111. How is scabies treated?

112. How is rabies transmitted? Describe the general treatment of a wound caused by a rabid animal.

113. What other preventive measures should be taken after the wound is treated, when a person has been bitten by an animal which may be rabid? How is the specimen for laboratory examination taken?

114. What type of wound is most likely to be infected with tetanus germs? How should such a wound be treated?

115. What prophylactic measures are used against tetanus?

116. How do plants cause external poisoning? How may this be controlled?

117. What is military hygiene?

118. Name the foods, and give an example of each food.

119. Describe the fitting of Army shoes on a new recruit.

120. Describe the prevention of blisters.

121. Describe the treatment of a blister which is not so tense as to be painful. Describe the treatment of a tense, painful blister of the heel.

122. Describe the measures taken to care for the feet on the march.

NURSING AND TREATMENTS

Temperature 4 hours: 1st hour

References: TM 8-220, pp. 197 - 199 Questions 1 - 7

- I. Introduction
  - A. Definition of temperature
  - B. Importance of study of temperature in nursing
  - C. Regulation of body temperature
    - 1. Heat production
    - 2. Heat elimination
    - 3. Heat regulating center
  - D. Temperature scales
    - 1. Fahrenheit scale
    - 2. Centigrade scale

- II. Thermometer
  - A. Description
  - B. Reading
  - C. Care in handling
  - D. Cleaning and sterilization

- III. Practice in Reading Temperature
  - A. Wooden thermometer model
  - B. Clinical thermometer

Temperature 4 hours: 2nd hour

References: TM 8-220, pp. 197 - 199 Questions 8 - 16

- I. Types of Thermometers
  - A. Mouth type
  - B. Rectal type
- II. Methods of Taking Temperatures
  - A. Mouth temperature
    - 1. Method and cautions in taking mouth temperature
    - 2. Contra-indications to mouth temperature
  - B. Rectal temperature
    - 1. Method and precautions in rectal temperature
    - 2. Contra-indications to rectal temperature
  - C. Axillary temperature
    - 1. Method of taking axillary temperature
    - 2. Contra-indications to axillary temperature
- III. Variations in Temperature
  - A. Elevation of temperature
  - B. Temperature below normal
- IV. Assignment of 24 Hour Exercise in Temperature

NURSING AND TREATMENTS

Temperature 4 hours: 3rd and 4th hours

References: TM 8-220, pp. 197 - 199 Questions 17 - 20

I. Discussion of Results of 24 Hour Temperature Exercise
  - A. Variations in "normal" temperature
  - B. Variations in individual's 24 hour temperature
  - C. Comparison between mouth and axillary temperature
  - D. Comparison between mouth and rectal temperature

II. Tabular Temperature Recording
  - A. Explanation of Form MD 55 H-1
  - B. Demonstration of use of Form MD 55 H-1
  - C. Application excercises on Form 55 H-1. Each student will work problems 1 and 2 (below) on blank form distributed in class

III. Graphic Temperature Recording
  - A. Explanation of Form MD 55 H-2
  - B. Demonstration of use of Form MD 55 H-2
  - C. Application excercises on Form MD 55 H-2. Each student will work problems 1 and 2 (below) on blank form distributed in class

IV. Problem 1 in Temperature Recording

Sergeant John F. Jones was admitted to the hospital on April 10, 1943, to Ward 3G. His temperatures were:

April 10 - AM 98.2 PM 99.0
April 11 - AM 99.1 PM 100.5
April 12 - AM 99.7 PM 101.8
April 13 - 8AM 102.0 12 Noon 102.4 4PM 103.3 8PM 103.1
April 14 - 8AM 102.9 12 Noon 104.9 4PM 105.0 8PM 105.4

V. Problem 2 in Temperature Recording

Sergeant John F. Jones was admitted to Ward 3G of the hospital December 29, 1942, at 10 P.M. His temperatures were as follows:

Dec. 29 - 10PM 99.3
Dec. 30 - AM 97.4 PM 98.6
Dec. 31 - AM 99.0 PM 105.3 10PM 100.2
Jan. 1 - 8AM 98.0 12 Noon 98.5 4PM 99.4 8PM 98.9
Jan. 2 - 6AM 97.9 8 AM 99.6 10AM 103.3 12N 104.4
2PM 105.7 4PM 104.4 6PM 102.7 8PM 100.1
Jan. 3 - 8AM 96.8 12 Noon 98.0 4PM 100.0 8PM 98.6
Jan. 4 - 8AM 98.1 12 Noon 97.9 4PM 98.3 8PM 98.4

Pulse 2 hours: 1st hour

References: TM 8-220, pp. 199 - 201 Questions 21 - 25

I. Review of Pulse
  A. Definition of pulse
  B. Mechanism of pulse production
  C. Review of location of common pulses
    1. Radial
    2. Brachial
    3. Carotid
    4. Temporal
    5. Femoral
    6. Dorsalis pedis

II. The Normal Pulse
  A. Demonstration of taking radial pulse
  B. Class application in taking radial pulse
  C. Listing and discussion of results of application
    1. Variations in "normal" pulse rate
    2. Average of pulse rates
    3. Variation in strength of "normal" pulses
    4. Irregularities in "normal" pulses

III. Factors Affecting the Pulse

IV. Practical Exercise in Pulse Rates
  A. Effect of exercise
  B. Effect of position change
  C. Effect of recording time on pulse rate
  D. 24 hour exercise in variation of pulse rates

Pulse 2 hours: 2nd hour

References: TM 8-220, pp. 199 - 201 Questions 26 - 31

I. Discussion of Results of Pulse Exercises
  A. Effect of position changes
  B. Effect of exercise
  C. Effect of recording time
  D. Daily variations in pulse
  E. The "normal" pulse

II. Tabular Pulse Recording
  A. Explanation and demonstration of use of Form MD 55 H-1
  B. Each student will record Problems 1 and 2 (below) on Form MD 55 H-1 distributed in class previously

III. Graphic Pulse Recording
  A. Explanation and demonstration of use of Form MD 55 H-2
  B. Each student will record Problems 1 and 2 (below) on Form MD 55 H-2, distributed in class previously

IV. Problem 1 in Pulse Recording

Sergeant John F. Jones was admitted to Ward 3G of the hospital April 10, 1943. His pulse readings were:

April 10 - AM 88 PM 80
April 11 - AM 83 PM 95
April 12 - AM 88 PM 99
April 13 - 8AM 102 12Noon 100 4PM 103 8PM 107
April 14 - 8AM 96 12Noon 126 4PM 118 8PM 115

V. Problem 2 in Pulse Recording

Sergeant John F. Jones was admitted to Ward 3G of the hospital on December 29, 1942, at 10 PM. His pulse rates were:

Dec. 29 - 10PM 90
Dec. 30 - AM 78 PM 73
Dec. 31 - AM 72 PM 128 10PM 93
Jan. 1 - 8AM 75 12Noon 78 4PM 80 8PM 74
Jan. 2 - 6AM 70 8AM 80 10AM 116 12N. 132
2PM 131 4PM 120 6PM 102 8PM 96
Jan. 3 - 8AM 68 12Noon 73 4PM 88 8PM 78
Jan. 4 - 8AM 75 12Noon 70 4PM 76 8PM 74

Respiration 1 hour

References: TM 8-220, pp. 199 - 201 Questions 32 - 39

I. Review of Physiology of Breathing
  A. Breathing
  B. Chemical respiration

II. Measurement of Respiratory Rate

III. Factors Affecting Respiratory Rate and Depth and Regularity
  A. Voluntary control
  B. Involuntary factors

IV. Characteristics of Breathing
  A. Rate
  B. Depth
  C. Rhythm

V. Tabular Recording of Respiratory Rate. Each Student Will Record Problems 1 and 2 (below) on Form 55 H-1

VI. Graphic Recording of Respiratory Rate. Each Student Will Record Problems 1 and 2 (below) on Form MD 55 H-2

NURSING AND TREATMENTS

VII. Problem 1 in Recording Respiration

Sergeant John F. Jones was admitted to Ward 3G of the hospital on April 10, 1943. His respirations were:

April 10 - AM 16 PM 18
April 11 - AM 17 PM 20
April 12 - AM 20 PM 24
April 13 - 8AM 26 12Noon 25 4PM 31 8PM 30
April 14 - 8AM 34 12Noon 43 4PM 52 8PM 46

VIII. Problem 2 in Recording Respiration

Sergeant John F. Jones was admitted to Ward 3G of the hospital on December 29, 1942, at 10 PM. His respirations were:

Dec. 29 - 10PM 21
Dec. 30 - AM 16 PM 16
Dec. 31 - AM 18 PM 42 10PM 24
Jan. 1 - 8AM 19 12Noon 17 4PM 20 8PM 20
Jan. 2 - 6AM 16 8AM 18 10AM 28 12N. 35
2PM 46 4PM 50 6PM 40 8PM 24
Jan. 3 - 8AM 15 12N. 16 4PM 21 8PM 18
Jan. 4 - 8AM 16 12N. 16 4PM 16 8PM 18

The Hospital Bed 4 hours: 1st 2 hours

References: TM 8-220, pp. 206 - 208 Questions 40 - 41

I. Introduction
  A. Types of hospital beds
  B. Importance of the bed in care of the patient
  C. Articles used in making an ordinary hospital bed

II. Demonstration of Making Unoccupied Bed

III. Application by Class of Making Unoccupied Bed in Model Ward

The Hospital Bed 4 hours: 2nd 2 hours

References: TM 8-220, pp. 206 - 208, 232 Questions 42 - 45

I. Discussion and Demonstration of Special Hospital Beds
  A. Fracture bed
  B. Oxygen bed
  C. Post-operative (ether) bed
  D. Shock bed

II. Demonstration of Changing Bed Occupied by Patient

III. Class Application in Model Ward of Special Beds and Changing of Occupied Bed

Bathing Patients 4 hours: 1st hour

References: TM 8-220, pp. 208 - 215 Questions 46 - 47

I. General Purposes of Bathing

II. General Types of Baths
    A. Water baths
        1. Hot
        2. Cold
        3. Tepid (lukewarm)
    B. Air baths
        1. Hot air bath
        2. Light bath
            a. Ordinary light
            b. Infra-red light (heat)
            c. Ultra-violet light
    C. Special baths

III. Specific Types of Baths
    A. Ordinary bed bath
    B. Hot tub bath
    C. Hot pack
    D. Steam bath
    E. Hot air bath
    F. Cold tub (Brandt) bath
    G. Cold sponge bath
    H. Cold pack
    I. Alcohol sponge bath
    J. Tepid bath
    K. Local baths
        1. Foot bath
            a. Hot foot bath
            b. Mustard foot bath
        2. Sitz bath
    L. Medicated baths
        1. Starch bath
        2. Bran bath
        3. Bicarbonate of soda bath
        4. Salt bath

Bathing Patients 4 hours: last 3 hours

References: TM 8-220, pp. 208 - 215 Question 48

I. Demonstration and Discussion of Ordinary Bed Bath

II. Student Application in Model Ward of Bed Bathing

Sterilization 2 hours

References: TM 8-220, pp. 76 - 80 Questions 49 - 53

I. Review of Theory of Sterilization
  A. Definition of sterilization
  B. Asepsis
  C. Antisepsis
II. Methods of Sterilization
  A. Mechanical
  B. Heat (thermal)
    1. Dry heat
      a. Flame
      b. Cautery
    2. Moist heat
      a. Boiling water
      b. Free steam
      c. Steam under pressure
  C. Chemical
    1. Skin
    2. Tissues
    3. Instruments and other material
  D. Physical
    1. Sunlight
    2. X-Rays
    3. Ultra-violet light

III. Demonstration of Sterilization of Ward Instruments in Electric Sterilizer (boiling water and steam)

IV. Demonstration of Setting out Sterile Tray of Ward Instruments

V. Student Application in Model Ward of Setting Out Sterile Tray of Ward Instruments, Folding Towels, and Sterilizing Ward Instruments

Oxygen Therapy 3 hours

References: Appendix 1. Questions 54 - 68

I. General Indication for Oxygen Therapy

II. Conditions Requiring Oxygen Therapy
  A. Insufficient supply of oxygen in inspired air
  B. Mechanical and chemical interference with breathing or proper gas exchange
  C. Disease conditions interfering with breathing or gas exchange

III. Dangers of Oxygen Therapy
  A. Fire
  B. Insufficient oxygen supplied to patient
  C. Excessive carbon dioxide accumulation

IV. Essential Parts and Functions of Oxygen Tent
  A. Hood and suspension apparatus
  B. Ice chamber or refrigerating chamber
  C. Motor blower or other circulator
  D. Soda lime compartment
  E. Drain pail
  F. Height and width regulation
  G. Oxygen tank
  H. Regulating (reducing) gauge and emergency flush valve
  I. Flow regulation

V. Demonstration and Discussion of Use of Tent
  A. Preparation of oxygen bed
  B. Preparation of patient
  C. Filling of ice chamber and soda lime compartment
  D. Connection of oxygen tank and gauges
  E. Connection of motor blower
  F. Wheeling tent into position
  G. Starting oxygen flow and circulation
  H. Tucking in hood
  I. Regulation of rate of flow and rate of circulation
  J. Replacement of empty tank and of used soda lime

VI. Observation and Regulation of Gases
  A. Gas analysis
  B. Signs and symptoms of oxygen satisfaction and want
  C. Symptoms and signs of excess of carbon dioxide

VII. Discontinuance of Therapy
  A. General indications and procedure
  B. Cleaning and sterilization of apparatus

VIII. Application of Setting Up and Operation and Discontinuance of Oxygen Tent by Students.

IX. Discussion of Different Methods of Administering Oxygen
  A. Nasal mask
  B. Oronasal mask
  C. Positive pressure mask
  D. Nasal catheter
  E. Mouth catheters
  F. Metal nose piece
  G. Face tent
  H. Head tent
  I. Oxygen chamber

X. Demonstration, Sterilization, and Application of Various Types of Oxygen Apparatus

Hypodermic Medication 3 hours

References: TM 8-220, pp. 220 - 222 Questions 69 - 72

I. Definition of Hypodermic Medication

II. Review of Anatomy of Skin

III. General Indications for Hypodermic Medication
  A. Substances causing gastric irritation
  B. Drugs destroyed by gastric and intestinal juices
  C. Greater rapidity of action
  D. Inability to take substances by mouth
    1. Vomiting
    2. Operations on abdomen
    3. Unconsciousness
    4. Lack of cooperation
  E. Local anesthesia

IV. Dangers of Hypodermic Injection
  A. Infection
  B. Breakage of needle
  C. Injection into blood vessel

V. Other Types of Injection by Needle
  A. Intramuscular injection
  B. Intravenous injection
  C. Intra-spinal injection

VI. Demonstration of Set Up and Preparation and Administration of Hypodermic Injection

VII. Class Application of Preparation and Administration of Hypodermic Injection

NURSING AND TREATMENTS

Special Procedures 2 hours

References: TM 8-220, pp. 222, 233 - 235, 238 - 239 Questions 73 - 85

I. Gastric Analysis
   A. Indications
   B. Types of gastric tubes used
   C. Procedure
   D. Demonstration of procedure
   E. Care of specimens and cleaning of apparatus

II. Spinal Tap
   A. Review of anatomy of nervous system and meninges
   B. Indications
   C .Apparatus
   D. Description and demonstration of procedure
   E. After care of patient

III. Paracentesis
   A. Indications
   B. Apparatus
   C. Discussion and demonstration of procedure
   D. Cautions

IV. Infusion
   A. Indications
   B. Solutions used
   C. Apparatus
   D. Discussion and demonstration of procedure
   E. Completion of infusion and after care of patient
   F. Transfusion

V. Hypodermoclysis

Infusions 3 hours

References: TM 8-220, pp. 222, 233-234 Questions 81 - 83

I. Demonstrations of Infusion Using Artificial Arm

II. Student Application of Infusion Procedure Using Artificial Arm

III. Discussion of Errors and Details of Infusion Procedure

IV. Discussion of Field Administration of Infusion Fluids

Weights and Measures 2 hours: 1st hour

References: Appendix 2 Questions 86 - 93

I. The Students Will Work Out Problems in Comparative Weights and Measures in the Model Ward.
  A. Apparatus
    1. Medicine dropper
    2. Medicine glass
    3. 2 cc. syringe
    4. Teaspoon
    5. Tablespoon
    6. Tumbler
    7. Graduated cylinder
  B. The following comparative weights and measures will be determined by actual trial:
    1. Drops in 1 cc.
    2. Drops in 1 teaspoon
    3. cc. in 1 teaspoon
    4. cc. in 1 tablespoon
    5. Teaspoons in 1 tablespoon
    6. Teaspoons in 1 ounce
    7. Tablespoons in 1 ounce
    8. Ounces in one tumbler
    9. cc. in 1 ounce
    10. cc. in 1 tumbler

II. The Results of the Above Experiments Will Be Charted on the Blackboard, and Averages Will Be Tabulated

Weights and Measures 2 hours: 2nd hour

References: Appendix 2 Questions 94 - 106

I. Metric System
  A. Important units of weight
  B. Important units of volume
  C. Weight-volume equivalents

II. Apothecaries System
  A. Important units of weight
  B. Important units of volume
  C. Weight-volume equivalents

III. Comparisons Metric and Apothecaries Systems - Important Equivalents

IV. Equivalents of Common Household Measures - Experimental and Theoretical Results

V. Common Terms Used in Prescription Writing and Medications
  A. Terms used in preparation of drugs
    1. Aq. or aqua or aq. dest.
    2. Cap.
    3. Mist.
    4. Pulv.
    5. Tr.
  B. Directions for dosages and application
    1. c
    2. s
    3. aa
    4. cc.
    5. Gm.
    6. gr.
    7. qs
    8. ss
    9. gtts.
    10. m
    11. i
    12. ii
  C. Directions for time of administration
    1. ac.
    2. pc.
    3. bid.
    4. tid.
    5. prn.
    6. sos.
    7. stat.
    8. q2h, q3h, q4h

Application of Heat and of Cold 1 hour

References: TM 8-220, pp. 225 - 228 Questions 107 - 114

I. Application of Heat
  A. Dry heat
    1. Uses of dry heat
      a. Relief of pain in toothache and earache
      b. Relief of abdominal pain
      c. Retention of urine
      d. Pain in arthritis and similar conditions
    2. Types of dry heat
      a. Hot water bottle
      b. Heating pads
      c. Heat lamps
      d. Bakers and cradles
    3. Hot water bottle
      a. Filling
      b. Application
      c. Precautions in use
      d. After care and cleaning

- B. Moist heat
    - 1. Uses
        - a. Relieve distention
        - b. Dressings for infected wounds
        - c. Hasten suppuration
        - d. Special application to various parts of body (eye, hand)
    - 2. Types of moist heat
        - a. Poultices
        - b. Stupes
        - c. Hot wet dressings
- C. Hot bath and hot pack

II. Application of Cold

- A. Dry cold
    - 1. Uses
        - a. Check deep inflammation and congestion
        - b. Reduce swelling
        - c. Relief of pain - external and internal
        - d. Prevent suppuration
    - 2. Types of dry cold
        - a. Ice bag and ice collar
        - b. Ice coils
    - 3. Ice bag
        - a. Filling
        - b. Application
        - c. Precautions in use
        - d. After care
- B. Moist cold
    - 1. Uses
        - a. Check bleeding and discoloration
        - b. Relieve pain and congestion - internal
        - c. Prevent suppuration
    - 2. Types of moist cold
        - a. Cold compresses
        - b. Ice packs

III. Rubber Goods - General Care

- A. Clean and dry before storing
- B. Remove oil
- C. Do not scour
- D. Avoid heat in storage
- E. Powder inside and outside
- F. Leave air in bags, rings, bottles
- G. Do not fold
- H. Coil tubing
- I. Loosen all clamps
- J. Do not boil hard rubber
- K. Care of stomach tubes

NURSING AND TREATMENTS

Enemas 2 hours

References: TM 8-220, pp. 222 - 225 Questions 115 - 117

- I. Review of Anatomy and Physiology of Bowel
  - A. Anatomy
  - B. Normal physiology
  - C. Bowel reflex
  - D. Sphincter action
- II. Types and Indications of Enemas
  - A. General indications
  - B. Contra-indications
  - C. Specific types of enemas
    - 1. Evacuant
    - 2. Retention
    - 3. Oil
    - 4. Proctoclysis
    - 5. Colonic irrigation
    - 6. Nutrient
    - 7. Medicated
    - 8. Carminative
- III. Discussion and Demonstration of Evacuant Enema
  - A. Materials used
  - B. Instructions to patient
  - C. Positioning and preparation
  - D. Procedure - precautions
  - E. Completion and care of materials
  - F. Charting
- IV. Application of Enemas by Students Using Manikin

Catheterization 2 hours

References: TM 8-220, pp. 236 - 237 Questions 118 - 120

- I. Review of Anatomy and Physiology
  - A. Anatomy
  - B. Normal physiology
  - C. Bladder reflex
  - D. Sphincter action
- II. Indications for Catheterization
  - A. Urine retention, with or without overflow
  - B. Dribbling
  - C. Aid to diagnosis
  - D. Prevent infection
  - E. Treatment
- III. Contra-indications and Dangers

IV. Discussion and Demonstration of Catheterization
    A. Catheterization tray
    B. Instructions to patient
    C. Positioning and preparation
    D. Procedure
    E. Completion and care of materials
    F. Charting

V. Application of Catheterization by Students on Manikin

Diets 2 hours

References: TM 8-220, pp. 194 - 196, 392 - 394 Questions 121 - 125

I. Foods
    A. Fats
    B. Carbohydrates
    C. Proteins

II. Accessory Food Factors
    A. Water
    B. Minerals
    C. Vitamines

III. Food and Accessory Factor Requirements
    A. Calorie
    B. Caloric requirements in various types of work
    C. Accessory requirements

IV. General Diet Requirements
    A. Adequate calories
    B. Adequate accessory factors
    C. C-F-P- ratio
    D. Separation into meals
    E. Satisfaction of palatability
    F. Climatic restrictions
    G. Personal tastes

V. Body Weight
    A. Maintenance
    B. Food fads and fancies

VI. General Types of Hospital Diets
    A. Full, or regular
    B. Light
    C. Soft
    D. Liquid
    E. Bland
    F. Special types - ulcer, etc.

[illegible]

[illegible]

[illegible]

[illegible]

VII. General Ward Routines at Mealtime
  A. Proper ward conditions
    1. Quiet
    2. Clean
    3. No visitors
    4. No treatments, dressings, rounds
  B. Care of special patients
    1. Ambulatory
    2. Bed patients
    3. Critically ill
    4. Contagious
  C. Tray set ups, seasoning, serving
  D. Care and cleaning of equipment
  E. Garbage disposal

Blood Pressure 2 hours

References: None Questions 126 - 128

I. Review of Anatomy and Physiology of Heart and Arterial System
  A. Intravascular pressure
  B. Fluctuations in pressure due to heart action

II. Measurement of Pressure
  A. Devices
  B. Application

III. Demonstration of Manometers and Procedures

IV. Students Application of Taking and Recording Blood Pressures

Questions

1. Define temperature.

2. Name the forces which produce heat in the body.

3. How is heat eliminated from the body?

4. What keeps the body temperature level?

5. What is the importance of temperature in nursing

6. Describe the care necessary in handling a thermometer.

7. Describe several ways of sterilizing a thermometer.

8. What is the difference between a mouth type thermometer and a rectal type thermometer?

9. Describe the method of taking a mouth temperature.

10. What are the contra-indications to taking a mouth temperature?

11. Describe the procedure in taking a rectal temperature.

12. What are the contra-indications to taking rectal temperature?

13. Describe the procedure in taking an axillary temperature.

14. What is the main contra-indication to taking axillary temperature?

15. What do we call a temperature above normal? What do we call a temperature below normal?

16. Does the temperature of all individuals read the same level at the same time?

17. Does the temperature of an individual remain constant during the course of the day?

18. What is the meaning of "normal" temperature?

19. How does the temperature of an individual taken by mouth compare with the temperature of the same individual taken by rectum at the same time?

20. How does the mouth temperature of an individual compare with his temperature taken in the axilla at the same time?

21. Define pulse.

NURSING AND TREATMENTS

22. What is the relationship between the heart rate and the pulse rate?

23. Describe the procedure in taking the radial pulse.

24. Name the common pulses often taken.

25. Is the pulse rate of an individual the same as the pulse rate of another individual when they are taken at the same time?

26. Does the pulse rate of an individual remain at the same rate during the course of a day?

27. Does the strength of the pulse of an individual measure the same as the strength of the pulse of every other individual who is in good health?

28. Name the factors which affect the rate of the pulse.

29. Describe the effect of position on the pulse rate.

30. Describe the effect of exercise on the pulse rate.

31. Why must the pulse rate be taken for a full minute?

32. Do all living things have respiration?

33. Do all living things breathe?

34. Where does "chemical" respiration take place in the body?

35. Why is there some connection between circulation and respiration?

36. Describe the procedure in measuring normal respiration.

37. What is true of the control of respiration which is not true of the control of pulse and temperature?

38. Name the factors which affect respiration.

39. What characteristics do we look for in taking the respiration?

40. Name the articles used in making an ordinary hospital bed.

41. What is the purpose of the rubber draw sheet used in making a hospital bed?

42. How does a fracture bed differ from an ordinary hospital bed?

43. How does an oxygen bed differ from an ordinary hospital bed?

44. Describe the changing of a regular hospital bed to an ether or post-operative bed.

45. How would you convert a regular hospital bed into a shock bed?

46. Name the general purposes of bathing patients.

47. Classify the baths into general types.

48. Describe briefly the procedure in giving a patient an ordinary bed bath.

49. Define sterilization.

50. What do we mean by asepsis?

51. How does antisepsis differ from asepsis?

52. Classify the methods of sterilization according to the medium used in sterilizing, giving examples of each class and subclass.

53. How long is it necessary to boil instruments in the ordinary electric sterilizer to make them sterile?

54. What is the general indication for oxygen treatment?

55. What do we mean by cyanosis? What produces cyanosis?

56. What are the general classes of conditions for which oxygen treatment may be required? Give examples of each class.

57. What is the chief danger of oxygen treatment?

58. What is the purpose of the ice chamber in an oxygen apparatus?

59. What is the motor blower for, in oxygen tents?

60. What is the function of the soda lime in oxygen apparatus?

61. What precaution must be taken with a fresh oxygen cylinder before connecting it to the gauges?

62. What is the purpose of the gauge called the regulator, or reducing gauge?

63. What measures the amount of oxygen left in the cylinder?

64. What measures the rate of flow of the oxygen into the tent?

65. What is the average rate of flow of oxygen into a tent to maintain an atmosphere of about 50% oxygen?

66. How can we determine whether a patient in an oxygen tent is getting enough oxygen?

67. What are the symptoms of an overdose of carbon dioxide?

68. How should an oxygen tent be cleaned after use?

69. What do we mean by hypodermic medication?

70. Name the general indications for hypodermic medication.

71. List the dangers of hypodermic injection.

72. What other types of needle treatments are there beside hypodermic injection?

73. What is gastric analysis?

74. Name the types of stomach tubes commonly used.

75. Describe briefly the usual procedure in gastric analysis.

76. How do you clean and sterilize the equipment after gastric analysis?

77. Why is spinal tap done?

78. Describe briefly the procedure in spinal tap.

79. What instructions are given to a patient who has had spinal tap to prevent headache?

80. What is the purpose of paracentesis?

81. What do we mean by infusion?

82. In what types of cases may infusion be used?

83. What substances are often given by infusion?

84. What is a transfusion?

85. What do we mean by hypodermoclysis?

86. About how many drops from an ordinary medicine dropper will it take to make one cubic centimeter?

87. How many cubic centimeters are in one ounce?

88. How many cubic centimeters are in a teaspoon?

89. How many cubic centimeters are in a tablespoon?

90. How many teaspoons are in an ounce?

91. How many tablespoons are in an ounce?

92. How many ounces are in a glass?

93. How many cubic centimeters are in a glass?

94. What is the unit of weight in the metric system?

95. What is the unit of volume in the metric system?

96. What is the unit of weight in the apothecaries system?

97. What is the unit of volume in the apothecaries system?

98. How many grains are in a dram?

99. How many drams make an ounce?

100. How many minims are in a dram?

101. How many grains are in a Gram?

102. How many Grams are in an ounce? How many cubic centimeters are in an ounce?

103. How many minims are in one cubic centimeter?

104. How many quarts are in one liter?

105. How many milligrams are in one grain?

106. How many cubic centimeters are in one quart?

107. What are the general indications for the use of dry heat?

108. How may dry heat be applied?

109. Describe the application of a hot water bottle. Describe the care of a hot water bottle during and after use.

110. What do we use moist heat for?

111. Name several types of moist heat applications.

112. What are the uses of dry cold?

NURSING AND TREATMENTS

113. Describe the filling, use, application, and care during and after use of an ice bag.

114. List the general rules in caring for rubber goods.

115. Review the anatomy of the bowel, pointing out the features which are important in giving enemas.

116. Name the general indications for enemas.

117. Name the different types of enemas, and describe their uses.

118. Review the anatomy of the urinary system, pointing out the features which are important in catheterization.

119. What are the indications for catheterizing patients?

120. What is the chief danger of catheterization?

121. Name the foods, and give an example of each type.

122. Name the accessory food factors.

123. What is the unit we use for measuring food values and food requirements?

124. What is the average caloric requirement for an ordinary sized man doing moderately heavy work, in number of calories required per day?

125. How is body weight maintained?

126. What is blood pressure?

127. What is systolic blood pressure?

128. What is diastolic blood pressure?

WARD MANAGEMENT

Organization of Hospitals 1 hour

References: TM 8-220, pp. 185 - 186 Questions 1 - 7

- I. Types of Army Hospitals
  - A. Fixed
  - B. Mobile
- II. General Hospital Personnel
  - A. Ward personnel - "Chain-of-Command" in ward
  - B. Overhead personnel
- III. Hospital Departments
  - A. Administrative
    - 1. Commanding Officer
    - 2. Executive Officer
    - 3. Adjutant
    - 4. Registrar
    - 5. Treasurer
    - 6. Personnel Officer
    - 7. Officer of the Day
    - 8. Chief Nurse
    - 9. Sergeant Major
  - B. Professional
    - 1. Medical
    - 2. Surgical
    - 3. Orthopedic
    - 4. Genito-Urinary
    - 5. Eye, ear, nose, throat
    - 6. X-Ray
    - 7. Laboratory
    - 8. Dental
    - 9. Physiotherapy
    - 10. Pharmacy
    - 11. Neuro-psychiatric
    - 12. Contagious
  - C. Supply and maintenance
    - 1. Medical Supply
    - 2. Quartermaster
      - a. General maintenance
      - b. Heat
      - c. Light
      - d. Gas
      - e. Water
      - f. Sewage
      - g. Sanitation
      - h. Laundry
      - i. Repair of equipment
      - j. Transportation (ambulances)
    - 3. Mess
  - D. Chaplain

WARD MANAGEMENT

Management of Hospital Ward 1 hour

References: TM 8-220, pp. 186 - 187 Questions 8 - 12

I. General Conditions Essential to the Recovery of the Sick
II. Qualifications of Ward Personnel
    A. Physical attributes
    B. Mental qualifications and desirable attitudes
III. General Arrangement of Ward
    A. Rooms
        1. Main ward
        2. Surgeon's office
        3. Nurse's or Wardmaster's office
        4. Diet kitchen
        5. Toilets
        6. Linen rooms
        7. Utility rooms
        8. Quiet rooms
        9. Porches or sun rooms
        10. Mop rooms
        11. Property room for patients' effects
    B. Ward arrangement
        1. Bed spacing
        2. Bed unit
        3. Ventilation
        4. Heat and light
        5. Sterilization

Duties of Ward Personnel 1 hour

References: TM 8-220, pp. 187 - 188 Question 13

I. Fundamentals of Ward Management
    A. Responsibility of personnel
        1. Surgeon
        2. Wardmaster
        3. Ward attendants
    B. Cooperation
    C. Essentials for recovery
II. General Duties of Surgeon
    A. Professional
    B. Administrative
III. General Duties of Wardmaster
    A. Professional
        1. Comfort, diet, and medication of patients

        2. Cleanliness of clothing, rooms, linen, general ward
        3. Take down orders of surgeon on rounds
        4. See that treatments and medications ordered are properly given
        5. Take TPR's
        6. Serve ward diets, prepare simple ward diets
        7. Sterilize ward instruments
        8. Give enemas and baths to patients
        9. Administer routine medications, and hypodermic medications
        10. Act as a practical nursing assistant for general ward procedures
    - B. Administrative
        1. Responsible for preservation of ward property, and monthly property inventory
        2. Responsible for performance of duty of ward attendants
        3. Enforce hospital and ward rules
        4. Regulate heat, light, ventilation
        5. Take care of courtesies to officers, find out the business of all visitors, show proper courtesies and procedures
        6. Maintain ward records of all types
            - a. Ward Book (inventory)
            - b. Ward Order Book
                - (1) All orders of surgeon written and signed
                - (2) Medications given when and as ordered
        7. Delegate the assistant wardmaster to act in the absence of the wardmaster

- IV. General Duties of Assistant Wardmaster
    - A. Professional - assist the wardmaster, function in his absence
    - B. Administrative - assist the wardmaster, function in his absence

- V. Ward Attendants
    - A. Uniform
    - B. Hygiene
    - C. Attitude and conduct
    - D. Professional duties

- VI. Patients
    - A. Observance of hospital and ward rules
    - B. Behavior, appearance, and consideration for others
    - C. Cooperation in work
    - D. Cooperation in treatments

WARD MANAGEMENT

Ward Rules and Cleaning 1 hour

References: TM 8-220, pp. 188 - 192 Questions 14 - 18

- I. Care of Ward Property
  - A. Permanent installations
  - B. Items needing repair
  - C. Expendable items
  - D. Non-expendable items
  - E. Linen
    - 1. Changing linen
    - 2. Stains, and their removal
- II. Ward Rules
  - A. Responsibility (chain-of-command)
    - 1. General responsibility of surgeon
    - 2. Duty of wardmaster in acquainting patients with, and enforcing rules
  - B. General rules - items covered by specific rules
    - 1. Medicines
    - 2. Records
    - 3. Alcohol and narcotics
    - 4. Disinfectants
    - 5. Relief orders
    - 6. Care of patients' property and valuables
    - 7. Information about patients
    - 8. Visitors
    - 9. Linen changing
    - 10. Supplies
  - C. Rules governing patients' conduct
    - 1. Noise, actions, profanity
    - 2. Gambling
    - 3. Food brought into ward by visitors
    - 4. Alcoholic beverages
    - 5. Smoking
    - 6. Care of the floor
    - 7. Leaving the ward
    - 8. Passes
- III. Cleaning Ward
  - A. General cleaning
    - 1. Daily preparation for rounds of surgeon
    - 2. Delegation of duties by wardmaster
    - 3. Order
  - B. Cleaning
    - 1. Daily dusting
    - 2. Cleaning of
      - a. Floors of various types
      - b. Copper, brass, nickel
      - c. Porcelain utensils, sinks, tubs

3. Lavatories
4. Beds and mattresses
5. Remocal of discharges, trays, sputum cups

Admission of New Patients 1 hour

References: TM 8-220, pp. 192 - 193 Question 19

I. Mode of Entry of Patient to Ward
    A. Ambulatory
    B. Chair
    C. Litter
II. Classification of Patients
    A. Officer
    B. Enlisted man
    C. Veteran
    D. Nurse
    E. Civilian, dependent of officer or soldier
    F. Civilian employee
    G. Emergency
III. Duties of Wardmaster on Admission of New Patient to Ward
    A. Attendant notifies senior non-commissioned officer
    B. Notify ward surgeon or Officer of Day
    C. Fill out records in Admission and Discharge Book
    D. Fill out and place Bed Card
    E. Make out and file Roster Cards
    F. Take T. P. R., record
    G. Bathe (Caution ! !)
    H. Issue hospital clothing
    I. Inventory of clothing, valuables, money
    J. Inspect clothing - send for disinfection if necessary
    K. Remainder of clothing to Property Room
    L. First urine specimen to laboratory
    M. Make out routine laboratory slips, and deliver
    N. Start patient's Clinical Record, or Chart
    O. Acquaint patient with ward and hospital rules

Discharge and Death of Patients 1 hour

References: TM 8-220, pp. 194 Questions 20 - 22

I. Discharge of Patients
    A. Types of discharge from ward
        1. Recovery
        2. Certificate of Disability Discharge (CDD)
        3. Transfer to another hospital
        4. Furlough or leave - temporary discharge
        5. Desertion or AWOL
        6. Death

B. Duties of Wardmaster on discharge of patient
  1. Discharge order must be written by surgeon in Ward Order Book
  2. Clearance slips filled out
  3. Clearance slips signed, patient accompanied by wardmaster or delegated attendant
  4. Patient brought to surgeon for consultation and final advice
  5. Patient goes to property room and puts on uniform accompanied by ward attendant
     a. Clearance slips brought back to ward by attendant
     b. Hospital clothing and other articles belonging to ward also brought back by attendant
  6. Clinical Record completed same day and forwarded to Registrar
     a. All sheets in proper order, and signed by surgeon where necessary
     b. Clearance slips attached
     c. Forwarding address to post-office or other mail station
  7. Admission and Discharge Book completed for this patient
  8. Beds stripped, bed card removed, roster cards removed, bed washed and make up fresh for new patient

II. Death of Patient - Duties of Wardmaster
  A. Notify ward surgeon or Officer of the Day
  B. After death confirmed by officer, notify promptly by slip the following:
     1. Information desk
     2. Adjutant
     3. Registrar
     4. Laboratory
  C. Tie wrists and ankles together
  D. Support jaw by bandage
  E. Bathe body
  F. Plug or tie all body orifices
  G. Attach mortuary (thumb) tags to places indicated, usually one thumb and one great toe
  H. Call laboratory and assist with removal of body to the morgue
  I. Strip bed, clean room and furniture, air room
  J. Complete and forward clinical record to Registrar
  K. Fill out Admission and Discharge Book

WARD MANAGEMENT

Prison and Insane Wards:. .Pharmacy 1 hour

References: TM 8-220, pp. 368 - 369 Questions 23 - 26

I. Prison Wards
  A. General responsibility
  B. Factors in administration
  C. In guard house
  D. In hospital

II. Insane Wards
  A. In general hospital
  B. In special psychiatric hospital
  C. General treatment measures for the insane
    1. Hydrotherapy
    2. Psychotherapy
    3. Sedative therapy
    4. Occupational therapy
  D. General nursing care of the insane - precautions
    1. Bed rest 24 hours
    2. Do not struggle with excited patients
    3. Diets
    4. Tube feeding
    5. Weight chart
    6. TPR record
    7. General hygiene
    8. Special hygiene - mouth, teeth, nose, throat, ears, skin, scalp, hands, nails
    9. Alcoholic beverages
    10. Smoking
    11. Coffee and tea
  E. Responsibility of surgeon
    1. General medical management
    2. Nursing management
      a. Decisions to be made by officer because of close relation between treatment and details of management
      b. Patient's contacts
        (1) Visitors
        (2) Mail
        (3) Contact with other patients
        (4) Clothing
        (5) Toilet articles
        (6) Feeding
        (7) Radio

III. Pharmacy
    - A. Responsibility
    - B. Organization
    - C. Operation
        - 1. Routine medication
        - 2. Narcotics
        - 3. Poisons
            - a. Definition of potent poison
            - b. Antidote remedies in prominent place

Infectious Diseases and Isolation 1 hour

References: TM 8-220, pp. 239 - 251 Questions 27 - 32

I. General Communicable Diseases and Their Control Measures
    - A. Venereal
    - B. Respiratory
    - C. Intestinal
    - D. Insect-borne
    - E. Miscellaneous

II. General Prevention and Control of Infectious Diseases
    - A. Immunizing procedures
    - B. Quarantine
    - C. Isolation
    - D. Reporting of cases - especially civil
    - E. Public health measures - especially civil
        - 1. Water supply
        - 2. Milk
        - 3. Meat and food inspection
        - 4. Sewage
        - 5. Mosquito control

III. Nursing and Treatment Measures
    - A. Quarantine and control of cases and carriers
    - B. Isolation of cases
        - 1. Disease unit
        - 2. Individual or patient unit
            - a. Space in ward
            - b. Cubicle
            - c. Room
    - C. Precautions taken by medical personnel
        - 1. General health and hygiene
        - 2. Immunization
        - 3. Visitors

- 4. Ward or room precautions
  - a. Gowns
  - b. Masks
  - c. Hands and nails
  - d. Miscellaneous
- D. Disinfection procedures
  - 1. Concurrent - secretions and discharges
    - a. Eyes
    - b. Nose and throat
    - c. Bowels
    - d. Urine
  - 2. Terminal and general disinfection procedures
    - a. Fresh air
    - b. Sunlight
    - c. Burning
    - d. Boiling and steam
    - e. Coal tar products
      - (1) Lysol
      - (2) Cresol
      - (3) Phenol
    - f. Soap solution
    - g. Formalin
    - h. Chlorinated lime
    - i. Bichloride of mercury

WARD MANAGEMENT

Questions

1. What are the two main types of Army hospitals? Give examples of each type.

2. Give the "Chain-of-Command" in a hospital ward, in order, from the highest authority to the lowest authority.

3. Into what general departments is a general or station hospital divided?

4. List the administrative departments of a general hospital.

5. List the professional departments of a general hospital.

6. Who is in charge of supply and maintenance in a general hospital?

7. What are the general functions of the Quartermaster in a general hospital?

8. List the conditions essential to the recovery of the sick.

9. What physical attributes are desirable in a good ward attendant?

10. What mental and emotional qualities are desirable in a person who will be a good ward attendant?

11. List the rooms in a ward.

12. What do we mean by a "bed unit"?

13. List the general duties of a Wardmaster, professional and administrative.

14. Describe the removal of the following stains from linen: (a) blood, (b) pus, (c) vomitus, (d) iodine, (e) mercurochrome.

15. How often should bed linen be changed?

16. Who makes the rules which govern a ward?

17. Who is responsible for acquainting the patients on a ward with the rules of the ward?

18. Who delegates the various duties connected with cleaning of the ward to those who do the cleaning?

WARD MANAGEMENT

19. List the duties of the wardmaster on the admission of a new patient to the ward.

20. What are the various types of discharges which are possible from a hospital in the Army?

21. List the duties of the wardmaster on the discharge of a patient from the ward.

22. List the steps carried out when a patient dies on the ward.

23. What are the general treatment procedures used in caring for insane patients?

24. What precautions are necessary in the nursing care of insane patients?

25. Why is the officer in charge of the medical care of an insane patient specially concerned with the nursing care and procedures?

26. What is a potent poison? What special care is taken of potent poisons on the ward?

27. List briefly the general measures involed in the nursing and treatment of infectious diseases.

28. What are the types of isolation?

29. In what sort of case would you use disease isolation? In what sort of cases would you use individual or case isolation?

30. Describe the general measures taken in the room of a patient with an infectious disease.

31. Describe concurrent disinfection of body wastes and discharges.

32. Describe some of the chemicals used, and the procedures in terminal disinfection.

Artificial Respiration 2 hours

References: TM 8-220, pp. 137 - 139 Questions 1 - 34

- I. Introduction to Artificial Respiration
  - A. General indication for artificial respiration
  - B. Specific causes for artificial respiration
    1. Drowning
    2. Electric shock
    3. Paralytic gases
    4. Carbon monoxide
    5. Illuminating gas
    6. Suffocation
    7. Fire accidents
    8. Anesthetic accidents
    9. Drug poisoning
  - C. Comparison mechanical measures and Schafer prone-pressure respiration
- II. Detailed Explanation of Application of Schafer Respiration
- III. Demonstration of Schafer Respiration
- IV. Class Application of Schafer Respiration
- V. General Discussion
- VI. Special Precautions in Artificial Respiration
  - A. Electric shock
  - B. Carbon monoxide (exhaust)
  - C. Illuminating gas
- VII. Oral Examination Artificial Respiration

Bites and Stings 1 hour

References: TM 8-220, pp. 129 - 130 Questions 35 - 49

- I. Chigger Bites
  - A. Occurrence
    1. Seasonal incidence
    2. Distribution on body
  - B. Treatment of lesion
  - C. Preventive measures
- II. Ticks - Review of Discussion in Insect-borne Diseases
- III. Bees and Wasps
  - A. Treatment of sting
  - B. Treatment of wound
  - C. Sensitivity

IV. Spider Bite
    A. Tarantula
    B. Black widow bite
        1. Description
        2. Symptoms of poisoning
        3. Treatment of case
V. Snake Bite
    A. Recognition of poisonous snakes
        1. Viperine group - rattlesnakes, wate mocassin, copperhead
        2. Colubrine group - coral snake
        3. General characteristics of poisonous snakes
    B. Symptoms of poisoning
        1. Viperine poisoning
        2. Colubrine poisoning
    C. Treatment
        1. Attempted indentification of snake
            a. Characteristics of snake
            b. Appearance of bite
        2. Rest
        3. Tourniquet application
        4. Incision
        5. Suction
        6. Specific treatment
        7. General supportive measures
            a. Fluids
            b. No alcohol or morphine
            c. Anti-tetanus measures

Heat and Cold Accidents 1 hour

References: TM 8-220, pp. 141 - 143, 145 - 146 Question 50 - 67

I. Heat Accidents
    A. Heat stroke
        1. Causes
        2. Symptoms and signs
        3. Treatment (emergency condition)
        4. Complications and after effects
    B. Heat exhaustion and heat cramps
        1. Causes
        2. Symptoms and signs
        3. Treatment
    C. Preventive measures against heat accidents
II. Frostbite
    A. Causes
    B. Dangers of improper treatment
    C. Treatment
    D. Prevention
III. Immersion Foot. Production, Prevention, Treatment

MEDICAL FIRST AID

Questions

1. What is the general indication for giving artificial respiration?

2. List the specific accidents in which artificial respiration may be applied.

3. Which should be used, Schafer artificial respiration, or some mechanical device like a pulmotor if one is available?

4. In drowning, how soon after the patient is removed from the water should artificial respiration be begun?

5. Should one roll a drowned person over a barrel or log?

6. If the jaws of a drowned person were clenched, how would you open them?

7. What do you do with the mouth after opening the jaws?

8. What is done with the tongue?

9. How does one empty the water from the lungs after drowning?

10. In what position is the patient placed on the ground?

11. If the ground slopes, how is the head placed?

12. Describe the position of the arms of the patient.

13. Describe the placing of the patient's head.

14. What position does the operator take with respect to the patient?

15. Describe the placing of the operator's hands.

16. How is air forced out of the lungs of the patient?

17. How long is pressure kept up on the chest?

18. How long is the phase of relaxation?

19. How many breaths per minute are given to the patient?

20. How does the operator relax and allow expansion of the lungs?

21. Are the arms bent or kept straight during application of pressure?

22. Does the operator keep his thumb alongside his fingers, or separated from his fingers?

23. How can the operator tell whether the respiration is effective?

24. How long is artificial respiration kept up?

25. Is brandy or other liquid stimulant forced between the lips of the unconscious patient?

26. What measures may be used to help the patient, in addition to respiration?

27. If the patient begins to breathe, is it safe to discontinue watching him?

28. What do you do if the patient stops breathing after he has begun?

29. Is the patient allowed to go home when normal respirations have begun?

30. What common complication results after drowning in many cases?

31. What special precautions should be observed when a patient has suffered severe electric shock?

32. What would be your first step if you found a patient unconscious in a garage as a result of exposure to automobile exhaust gas?

33. What care would you take if you found a patient unconscious in a room filled with illuminating gas?

34. How would you proceed if you had to move a patient during the application of artificial respiration?

35. What is the appearance and chief symptom of chigger bite?

36. What is the danger of chigger bite?

37. Describe the treatment of chigger bite.

38. What are the useful preventive measures against chigger bite?

39. Discuss field precautions against tick bite and disease.

40. What is the treatment of bee sting?

41. Describe the appearance of a black widow spider.

42. What is the first aid treatment for the bite, or suspected bite, of a black widow spider?

43. List the chief characteristics of poisonous snakes which enable their identification.

44. How may one sometimes tell the bite of a poisonous or nonpoisonous snake from the appearance of the resulting wound?

45. What are some of the general symptoms which might result from the bite of a poisonous snake?

46. List briefly the first aid procedures in snake bite.

47. Why should one not direct a patient to an aid station or dispensary in case of snake bite?

48. Describe the application of a tourniquet in snake bite of an extremity.

49. Why should one not cauterize the wound of a snake bite?

50. What is the cause of heat stroke?

51. What are the symptoms and signs of heat stroke?

52. How soon after the diagnosis is made should one begin treatment for heat stroke?

53. Describe the treatment for heat stroke.

54. Is the patient who has suffered heat stroke more liable to other attacks, or less liable?

55. What conditions cause heat cramps or heat exhaustion?

56. What muscles are involved in heat cramps?

57. What are the signs and symptoms of heat exhaustion?

58. Describe the treatment of heat exhaustion and heat cramps.

59. What preventive measures should be used to ward off heat accidents?

60. Describe the conditions favoring the production of frostbite.

61. What are the signs and symptoms of frostbite?

62. Describe the general treatment of frostbitten limbs.

63. What are some of the errors in treatment of frostbite which are often made or described?

64. Describe the measures which prevent frostbite.

65. What is immersion foot?

66. Discuss the prevention of immersion foot.

67. Discuss briefly the treatment of immersion foot.

PROPERTY

Issue and Distribution of Property 1 hour

References: TM 8-220, pp. 347 - 357, 373 - 389 Questions 1 - 20

I. Importance of Supply Problem in Medical Department
  A. Difficulty of problem
  B. Necessity of adequate and dependable system of supply
II. Differences Between Public and Private Property
  A. Use of property
  B. Record
  C. Responsibility
III. Responsibility for Supply and Property
  A. Commaanding Officer
    1. Use responsibility
    2. Record responsibility
  B. Delegation of general responsibility
    1. Use responsibility (Responsibility)
    2. Record responsibility (Accountability)
IV. Types of Property
  A. Expendable
  B. Non-expendable
V. Supply Tables
  A. Tables of Organization
  B. Table of Allowances
  C. Table of Basic Allowances
  D. Supply Table of the Medical Department
VI. Obtaining and Issuing of Property
  A. Requisition
  B. Shipping Ticket
  C. Stock Record
  D. Memorandum Receipt
  E. Account of Property on Memorandum Receipt
  F. Medical Department Property Forms
    1. Issue Slip Expendable Property
    2. Issue Slip Non-expendable Property
    3. Credit Slip Non-expendable Property
    4. Exchange Slip Non-expendable Property

Worn and Damaged Property 1 hour

References: TM 8-220, pp. 347 - 357, 373 - 389 Questions 21 - 30

I. Property Worn Out Through Fair Wear and Tear
  A. Procedure followed
  B. Satisfaction of responsibility and accountability

PROPERTY

II. Property Over, Short, Stolen, Damaged by Natural Causes

III. Property Damaged or Destroyed by Wilful Misconduct or Negligence
  A. Statement of Charges
  B. Payroll
  C. Report of Survey
  D. Satisfaction of responsibility and accountability

IV. General Review Supply and Property

PROPERTY

Questions

I. Why is knowledge of handling of property of great importance to a member of the Medical Department?

2. What are the chief differences between public property and private property?

3. Who is responsible for supply and property within any organization?

4. How is the general responsibility for government property within an organization delegated?

5. What do we mean by the function of "responsibility" for government property?

6. Who is usually "responsible" for government property in the Army?

7. What do we mean by the function of "accountability" for government property?

8. Who is usually "accountable" for government property within an organization?

9. What are the types of property in the Army?

10. Define expendable property, giving examples.

11. Define non-expendable property, giving examples.

12. Where does one find information which tells how much property is allowed for an organization?

13. Where does the information about allowances of Medical Department property exist?

14. What do we mean by the term "standard" with respect to Medical Department property?

15. What is a Requisition?

16. What form accompanies shipment or transfer of property between accountable officers?

17. How does the supply office keep inventory of its property?

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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PROPERTY

18. How does a supply office keep record of property issued to organizations or to individuals?

19. How does a supply office keep general record of property issued for checking inventories?

20. Why are special forms used within the Medical Department for property issued to wards? What are the forms used?

21. Describe briefly the general procedure followed when property has been worn out or damaged or destroyed by fair wear and tear in the military service.

22. How is the responsible person relieved of financial responsibility for such property?

23. How is the accountable person relieved of financial responsibility for such property?

24. What procedure is followed when property is damaged by natural causes which cannot be foreseen nor prevented?

25. What is done when property, on inventory, is found short or in excess, when the error cannot be found, and careful watch has been kept over the property?

26. What is the general procedure followed when property is damaged or lost or destroyed by wilful misconduct or by negligence?

27. What may be entered on a statement of charges to prevent unnecessary alteration of the payroll?

28. Must a soldier accept a statement of charges? How does he signify his unwillingness to accept a charge so made?

29. What happens when a soldier refuses to accept a statement of charges made against him?

30. What appeal may be made from the decision given by a Board of Survey?

FILMS ON MEDICAL SUBJECTS

Training Film 8-154 - Sex Hygiene

Training Film 8-155 - Personal Hygiene

Training Film 8-953 - Malaria

Training Film 8-999 - The Fly

Training Film 8-1000-The Louse

Film - Oxygen Therapy

Film Strip - 5-12 - Military Water Supply Purification
Film Strip - 5-13 - Military Water Supply Purification
Film Strip - 8-1 - Classification of Wastes
Film Strip - 8-2 - Communicable Diseases, Respiratory Diseases
Film Strip - 8-3 - Control of Intestinal Diseases
Film Strip - 8-4 - Control of Intestinal Diseases - Food Control
Film Strip - 8-5 - Control of Insect-borne Diseases
Film Strip - 8-6 - Control of Venereal Diseases
Film Strip - 8-7 - First Aid, General Fractures, Snake Bite, Drowning
Film Strip - 8-8 - Principles of Military Epidemiology
Film Strip - 8-9 - Water Supply and Purification
Film Strip - 8-10 - Control of Intestinal Diseases - Food Control
Film Strip - 8-11 - Control of Intestinal Diseases - Waste Control
Film Strip - 8-12 - Control of Insect-borne Diseases
Film Strip - 8-13 - Sanitary Inspections, Reports, Orders, Surveys

Film Strip A - The Hospital Bed, Part I

Film Strip B - The Hospital Bed, Part II

Training Slides - Hypodermic Medication

APPENDIX I

OXYGEN APPARATUS

The Oxygen Tent

The Oxygen Tent consists of the following essential parts:

A Hood This is usually of rubberized fabric, with celluloid windows so the patient can see and be seen. It is provided with sleeves or zipper openings, so that the patient can be reached without removing the hood. The purpose of the hood is to provide a chamber of reasonable size in which the patient can be enclosed in an oxygen-enriched atmosphere with controlled humidity.

B. Hood Suspension Apparatus This consists of metal spring hangers which can be extended on a folding rod, to suspend the hood at a suitable width. The whole hood can be tilted up because the suspension apparatus is hinged for this purpose, allowing the tent to be maneuvered over the patient by one attendant.

C. Ice Chamber This is an enclosed, sealed chamber, into which chunks of ice, 3" to 6" in size, are placed, over which the tent air circulates. Here the tent air is cooled and the excess moisture is removed.

D. Motor Blower This part works by electric motor, with suitable rheostatic control to regulate the speed. It circulates the tent air through the ice chamber and the soda lime.

E. Soda Lime Compartment The soda lime, a chemical which absorbs carbon dioxide, is placed in a wire basket in a sealed compartment at one side of the ice chamber. The particles of soda lime should be 4 to 8 mesh. As the tent air is circulated through the soda lime chamber by the motor blower, the carbon dioxide is removed.

F. Drain and Drain Pail The drain through which the water from the melting ice passes is located at the bottom of the ice chamber. It is provided with a trap to prevent the escape of oxygen through the drain. The drain pail is removable for emptying.

G. Height Regulation The height of the hood and the apparatus is adjusted by a screw device at the top of the ice chamber, controlled to be moved up or down by a ratchet wrench. Some model tents have a built in crank to take the place of the ratchet wrench. This is to allow adjustment of the apparatus for beds of varying heights.

H. Oxygen Clyinder The cylinder or tank of oxygen should be of the large, 220 cubic feet, or larger size, rather than the tank of so-called medical oxygen, which is much smaller. There is no difference in the oxygen itself, so that the smaller tank requires more frequent changing, which is undesirable, as well as being more costly for the same quantity of oxygen. Since the pressure within a tank of oxygen is over 2000 pounds per square inch when the cylinder is full, great care must be exercised in handling the cylinder and its contents. The main cylinder valve, at the top of the cylinder, should be left completely shut or completely open, as it seats only in these positions, not in intermediate position.

I. **Regulating Gauge** This gauge **(which should never be oiled)** connects with the main cylinder valve, but may require an adapter to complete the connection when a small cylinder of oxygen is used. The connection must be completely leakproof. If it leaks, washers of lead or asbestos fibre may be used - no other type of washer is permissible. The left hand face of the gauge registers the pressure in the cylinder, which shows how much oxygen is left - as the pressure falls toward zero, the cylinder empties. The other, right hand face of the gauge, registers the rate of flow of the oxygen into the tent, as the pressure of the oxygen has been reduced by the time the oxygen passes through this gauge. The flow gauge registers the rate of flow in liters (quarts) of oxygen per minute.

J. **Flush Valve** For emergencies, when it is desired to fill the tent with oxygen quickly (as when the tent is first placed in position over the patient) this valve permits the oxygen to flow directly into the tent without passing through the flowmeter. It is located in back of the regulating gauge.

The general procedure in setting up and operating the oxygen tent may be outlined as follows:

1. The apparatus is assembled outside the patient's room. The parts are placed in position, the ice chamber is filled, the soda lime basket is filled, and the entire apparatus is readied.
2. The patient is warned of the procedure, and how he will benefit by the treatment is explained to him. The bed is converted into an oxygen bed in the usual manner.
3. The apparatus is wheeled in, and the hood is placed in position over the patient, but is not tucked in.
4. The cylinder and gauges are properly connected, after first opening the cylinder valve quickly and closing it ("cracking" the valve) to blow out any dust which may have accumulated.
5. The motor blower is connected to an electric outlet, and the blower is started at an intermediate speed. The flow of oxygen is started, at a rate of about 8 liters flow per minute.

6. The tent is tucked in around the patient, using a draw sheet to cover the lower end.

7. With the emergency flush valve, the tent is flushed with oxygen for a full minute.

8. The motor speed and rate of flow of the oxygen are adjusted as the patient's symptoms and comfort dictate, and the results of the gas analysis. The tent air is analyzed at the end of the first 30 minutes of operation, and at least three times a day after that, for oxygen content. If the tent is being operated by inexperienced persons, the tent air is analyzed more often.

9. Soda lime is renewed every 15 - 24 hours, or as the patient's symptoms or the gas analysis show. Ice is replaced as it melts. The cylinders of oxygen are replaced when nearly empty. An extra cylinder of oxygen is always kept in readiness so that there will be no interference with the administration of oxygen to the patient. During each of the steps mentioned, the flow of oxygen is stopped. When the ice chamber or soda lime compartment are opened, the motor blower is stopped as well. When the tent is removed for bathing the patient, or for other treatment which requires the removal of the tent for a time, the oxygen and blower are shut off. When the tent is replaced again, the same care is necessary as before - to start the blower and oxygen flow before tucking in the tent, and to flush the tent with oxygen before leaving the patient, for a full minute after tucking the patient in.

10. When the apparatus is removed from the patient at the termination of the treatment, the ice tank is flushed with running water, followed by a flushing or wiping with alcohol solution, or other odorless antiseptic solution like bichloride of mercury solution. The inside of the tent is thoroughly washed down with the same solution, the rubber is allowed to dry with the tent extended, and then the fabric should be powdered to preserve it before the hood is collapsed for storage.

Gas Analysis

Although there is no substitute for observation of the patient in determining the effect of oxygen therapy in a tent, the actual analysis of the gas inside the tent for amounts of oxygen and carbon dioxide present is a valuable aid, and is, in fact, indispensible when the tent is operated by inexperienced personnel. Even well trained personnel should check up on their operation of the tent at intervals by analysis of the atmosphere within the tent.

Analysis for oxygen content of the tent air is a simple procedure, with many easily worked types of analyzers available. Analysis of the tent air for carbon dioxide is more difficult, and is rarely done, particularly as it is so very unusual for carbon dioxide to accumulate to any great degree.

It must be remembered that ordinary air contains about 1/5th, or 20% oxygen. The oxygen analyzer is based on the principle of absorption of oxygen by certain chemicals, leaving the other gases behind. Thus if ordinary air is analyzed, about 20% of the volume of the air would be absorbed by the chemical. This would be easily determined by filling a 10cc. syringe with air, and passing this 10cc. through the solution, which would absorb 2cc., leaving 8cc. behind unabsorbed. If a sample of tent air is drawn for analysis from the place usually provided in the tent, into a 10cc. syringe, the sample is passed through the solution as the directions on the analyzer indicate, and the number of cc. absorbed gives the percentage of oxygen in the tent. Thus if 5cc. of the 10cc. drawn are absorbed, the oxygen content is 50%. If 6cc. were absorbed, the tent air would contain 60% oxygen.

The Oxygen Mask

Several types of oxygen masks are in use, the most common being the BLB mask, nasal or oronasal types. Advantages and disadvantages of the various types are elsewhere discussed.

The bag and mask assembly are connected to the outlet on the back of the flowmeter of the gauge set. The oxygen coming out of the flowmeter passes into the rebreathing bag, and is then drawn by the breath into the nose chamber and into the patient's respiratory tract.

The exhaled breath first distends the bag, the remainder of the breath escaping into the air as the bag is distended and cannot hold more gas. The first portion of the exhaled breath contains unused oxygen, and since this goes into the bag to be rebreathed, it is saved. The last portion of the exhaled breath has its oxygen exhausted, and this part passes out into the air. The oxygen coming into the bag from the cylinder, plus the oxygen from the first part of the patient's breath, combine to give him a rich atmosphere of oxygen to breathe. More oxygen is given by increasing the rate of flow of oxygen from the flowmeter. The air in the bag is also moistened by the exhaled breath, which is a great advantage.

For a medium sized person, a rate of flow of 3 liters per minute gives 40-55% oxygen, 5 liters per minute gives 70-80%, 7 liters per minute gives 90-100% oxygen. Larger persons require more, smaller require less oxygen for the same concentrations.

The entire apparatus may be sterilized by boiling for three minutes, bag and all. The exhaling valve should be adjusted so that the bag does not entirely collapse with inspiration.

APPENDIX II

Metric Table

Unit	Weight	Volume	Length
1000.	Kilogram (Kg)	Kiloliter (Kl)	Kilometer (Km)
100.	Hectogram (Hg)	Hectoliter (Hl)	Hectometer (Hm)
10.	Dekagram (Dg)	Dekaliter (Dl)	Dekameter (Dm)
1.	GRAM (Gm)	LITER (L)	METER (M)
0.1	decigram (dg)	deciliter (dl)	decimeter (dm)
0.01	centigram (cg)	centiliter (cl)	centimeter (cm)
0.001	milligram (mg)	milliliter (ml)	millimeter (mm)

Apothecaries Table

Weight Unit - grain (gr)

20 grains - 1 scruple
3 scruples - 1 dram - 60 grains
8 drams - 1 ounce - 480 grains
12 ounces - 1 pound - 5760 grains

Volume Unit - minim (m)

60 minims - 1 fluidram
8 fluidrams - 1 fluidounce - 480 minims
16 fluidounces - 1 pint
2 pints - 1 quart
4 quarts - 1 gallon

Approximate Measures

1 tumblerful	8 ounces	240 cc.
1 cupful	4-6 ounces	120 - 180 cc.
1 wineglassful	2 ounces	60 cc.
1 tablespoonful	4 drams (1/2 ounce)	16 cc.
1 dessertspoonful	2 drams	8 cc.
1 teaspoonful	1 dram	4 cc.

Approximate Equivalents

1 Gram	15 grains
1 cubic centimeter	15 minims
1 grain	60 milligrams
1 meter	39 inches
1 inch	2 1/2 centimeters
1 ounce	30 Grams or 30 cc.
1 Kilogram	2.2 pounds

ANATOMY AND PHYSIOLOGY

Introduction — 1 hour

References: TM 8-220, pp. 6 - 9 Questions 1 - 10

I. Definitions
  A. Anatomy
  B. Physiology
II. The Cell
  A. As a unit of structure
  B. General description
  C. General functions
III. Types of Cells (Tissues)
  A. Skeletal (bone) and ligaments
  B. Muscles and tendons
  C. Nerve
  D. Circulating (blood)
  E. Secretory (glands)
  F. Protective (skin)
  G. Special types
IV. Organs and Systems
  A. Structure
  B. Functions
V. Importance of Anatomy and Physiology
  A. In disease
  B. In first aid and minor surgery
  C. In major traumatic conditions

Extremities — 1 hour

References: TM 8-220, pp. 9 - 14 Questions 11 - 23

I. Upper Extremity
  A. Bones
  B. Muscles, tendons, and tendon sheaths
  C. Nerves
  D. Blood vessels
  E. Joints
  F. Motions and general anatomical positions
II. Lower Extremity
  A. Bones
  B. Muscles
  C. Nerves
  D. Blood vessels
  E. Joints and arches
  F. Motions and general anatomical positions

ANATOMY AND PHYSIOLOGY

Thorax 1 hour

References: TM 8-220, pp. 10, 11, 20, 21 Questions 24 - 30

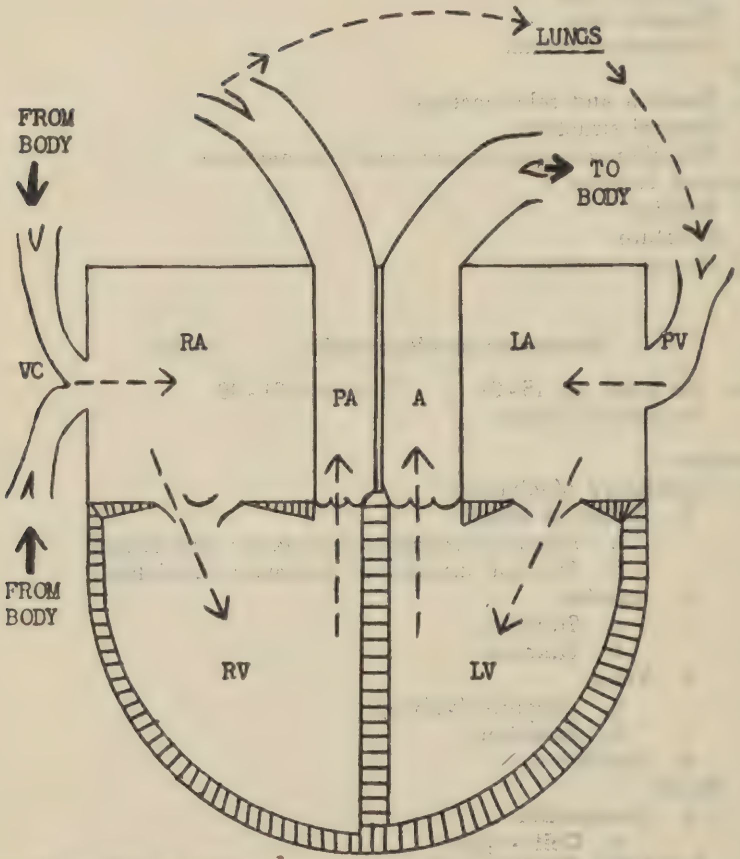
I. Thoracic Structure
  A. Thoracic wall
  B. Thoracic cage
  C. Contents of thorax
II. Heart
  A. Position and relationships
  B. General structure
  C. Chamber connections and vessel connections
III. Lungs and Trachea
  A. Position
  B. Structure
  C. Minute structure

Circulation and Respiration 1 hour

References: TM 8-220, pp. 15 - 21 Questions 31 - 40
Anatomical Charts

I. Circulation
  A. Circulatory Mechanism
    1. Action of heart
      a. Internal circulation (and lesser circulation)
      b. External circulation (systemic circulation)
    2. Arteries
      a. Structure
      b. Function
    3. Veins
      a. Structure (valves)
      b. Function
    4. Capillaries
  B. Blood
    1. Composition
      a. Cells - types
      b. Plasma
    2. Function
    3. Clotting
II. Respiration
  A. External respiration
    1. Action of diaphragm
    2. Action of thoracic cage
    3. Effect on lungs
  B. Internal (chemical) respiration
    1. In alveoli
    2. In body cells

DIAGRAM OF HEART



VC — VENA CAVA
A — AORTA
PA — PULMONARY ARTERY
PV — PULMONARY VEINS

RA — RIGHT AURICLE
RV — RIGHT VENTRICLE
LA — LEFT AURICLE
LV — LEFT VENTRICLE

ANATOMY AND PHYSIOLOGY

Abdomen . 1 hour

References: TM 8-220, pp. 21 - 23 Questions 41 - 45
Anatomical Charts

I. General Relations
    A. Boundaries
    B. External anatomy
    C. Wall
    D. Concept of body cavity

II. Contents
    A. In site
    B. List of contents

III. Systems in abdomen
    A. Gastro-intestinal tract
    B. Urinary tract
    C. Reproductive tract

IV. Organs and Tissues of Gastro-intestinal Tract

V. Organs of Urinary Tract

VI. Organs of Reproductive Tract

Physiology of Abdominal Systems 1 hour

References: TM 8-220, pp. 21 - 33 Questions 46 - 56

I. Gastro-intestinal Physiology
    A. Foods
    B. General purpose of digestion
    C. Secretion and action of digestive enzymes
    D. Absorption of digested foods. Assimilation
    E. Excretion of wastes. Bowel physiology

II. Urinary Physiology
    A. Functions of kidney
    B. Bladder function
    C. Composition of urine

III. Reproductive Physiology
    A. Function of testicles
    B. Passage and storage of semen
    C. Ejaculation
    D. Nocturnal emission

ANATOMY AND PHYSIOLOGY

Nervous System 1 hour

References: TM 8-220, pp. 25 - 27 Questions 57 - 64
Anatomical Charts

- I. Gross Structure
    - A. Brain
        - 1. Divisions
        - 2. Gross appearance
    - B. Spinal cord and spinal nerves
    - C. Meninges
        - 1. Structure of meninges
        - 2. Circulation of cerebro-spinal fluid
    - D. Peripheral nervous system
        - 1. Nerves
        - 2. Ganglia
- II. Minute Structure
    - A. Microscopic structure of brain
    - B. Microscopic structnre of nerves
- III. Function of Nervous System
    - A. Sense perception
    - B. Conduction of sensation
    - C. Interpretation and perception
    - D. Motor action
    - E. Fundamentals of reflex arc
    - F. Automatic nervous function

Head, Neck and Axis 1 hour

References: TM 8-220, pp. 10 - 11, 18 - 19 Questions 65 - 72
Anatomical Charts

- I. General Anatomy of Head
    - A. Scalp
    - B. Skull
    - C. Nasal chamber, sinuses, pharynx
    - D. Mouth
- II. Neck
    - A. Surface anatomy
    - B. Blood vessels
    - C. Larynx
- III. Axial skelton
    - A. Bones
    - B. Muscles
    - C. General function of spine. Posture

ANATOMY AND PHYSIOLOGY

Skin; Special Senses; Endocrines 1 hour

References: TM 8-220, pp. 27-31 Questions 73-80
Anatomical Charts

I. Skin
  A. Structure
  B. Functions
    1. Protective
    2. Excretory
    3. Absorptive
    4. Temperature regulating
    5. Maintenance of fluid balance
    6. Sense perceptive
    7. Other

II. Special Senses
  A. Eye-vision
    1. Structure
    2. Physiology of vision
  B. Ear-hearing
    1. Structure
    2. Physiology of hearing
  C. Tongue-taste
  D. Nose-smell
  E. Skin-touch

III. Endocrine System
  A. General nature of endocrine glands
  B. Thyroid gland
    1. Anatomy
    2. Functions
  C. Pituitary gland
  D. Adrenal gland
  E. Pancreas
  F. Sex glands

ANATOMY AND PHYSIOLOGY

Questions

1. Define anatomy.

2. Define physiology.

3. Why is the study of anatomy and physiology important for a technician?

4. What is a "cell" in anatomical terms?

5. Name the important structures found in a cell.

6. What are the functions a cell performs?

7. Name 5 different types of cells found in the body.

8. What is a tissue? Give several examples.

9. What is an organ? Give several examples.

10. What is a system? Give several examples.

11. Name the bones of the upper extremity, giving the numbers of each type of similar bone found.

12. What are the important muscle groups of the arm?

13. Why is it important to know about the tendon sheaths in the hand?

14. What are the chief nerves of the upper extremity?

15. What is the main artery of the arm? What are the two branches of this artery in the forearm?

16. Name the joints of the upper extremity.

17. Describe the types of motions of which the shoulder joint is capable.

18. What motions are possible at the elbow?

19. Which side of the hand is the dorsal side?

20. Name the bones of the lower extremity, giving the numbers of each type of similar bone found.

21. What are the important muscle groups of the lower extremity?

22. What are the joints of the lower extremity?

23. What are the chief arteries of the lower extremity?

24. Describe the structure of the thoracic wall.

25. What bones make up the thoracic cage?

26. Name the organs and structures found in the thorax.

27. Where does the heart lie in the thorax?

28. Name the chambers of the heart.

29. Describe briefly the course of blood through the heart.

30. Describe briefly the structure of the lungs, showing how they are especially adapted for gas exchange.

31. Why is the wall of the left ventricle thicker than the wall of the right ventricle?

32. From where does the right side of the heart obtain its blood?

33. Where does the right side of the heart send its blood?

34. From where do the chambers of the left side of the heart obtain their blood?

35. Where does the left side of the heart pump its blood?

36. Describe briefly the physiology of breathing.

37. Where does chemical, or internal respiration place? What gases take part in this process?

38. What is a capillary? What is its function?

39. How does an artery differ in structure from a vein? Why is this difference in structure important in the mechanism of circulation?

40. What is blood? What are its chief components?

41. Describe the abdominal wall. How does the abdominal wall differ from the thoracic wall?

42. List the organs and structures found in the abdomen.

43. Name the organs and structures of the gastro-intestinal tract, going from above downward.

44. Name the organs of the urinary tract.

45. Name the organs of the reproductive tract.

46. What is a food?

47. Name the classes of foods.

48. What do we mean by digestion?

49. What is the digestive enzyme found in the mouth, and on what type of food does this enzyme work?

50. What do the enzymes of the stomach do in digestion?

51. What do the enzymes of the intestinal juice act on in the process of digestion?

52. Where in the gastro-intestinal tract does the absorption of digested food take place?

53. What is the function of the large bowel in the digestive process?

54. What is the function of the kidney?

55. What is the function of the bladder? What stimulates the bladder to empty?

56. What happens in the testicles?

57. What are the chief subdivisions of the central nervous system?

58. What are the structures called which enclose the central nervous system?

59. What is cerebro-spinal fluid?

60. Describe the structure of an ordinary cell, showing how it is adapted to carry out its function.

61. What is the place in the nervous system which is the site of most automatic (reflex) actions?

62. What takes place within the brain?

63. How does the nervous system receive its stimuli?

64. How does the nervous system bring about action in response to the stimuli it receives?

65. What is the purpose of the skull?

66. What is the general direction that the nasal chamber takes in the head?

67. What is a nasal sinus?

68. Where are the nose and the mouth connected?

69. Where are the important blood vessels of the neck located?

70. Where is the larynx, and what does it do?

71. Name the bones of the spine, giving the number of each similar type of spinal bone found.

72. What is the general function of the vertebral column? Why is the vertebral column not made of a single sheet of bone?

73. Describe briefly the general structure of the skin.

74. List the functions of the skin.

75. Explain briefly the similarity between the eye and a camera.

76. Name the chief divisions of the ear, telling the main functions of each division.

77. What do we mean by an endocrine gland?

78. What do we call the secretion of an endocrine gland?

79. Name the important endocrine glands of the body.

FIRST AID AND MINOR SURGERY

Introduction. Wounds 1 hour

References: TM 8-220, pp. 126 - 128 Questions 1 - 17

I. Importance of First Aid
    A. Definitions
    B. General types of cases requiring first aid
    C. Importance of first aid

II. General Rules for First Aid

III. Wounds
    A. Definition of wound
    B. General types of wounds
        1. Aseptic
        2. Septic
        3. Poisoned
    C. Classification according to appearance
        1. Incised
        2. Lacerated
        3. Contused
        4. Puncture

IV. Complication of Wounds
    A. Infection
    B. Bleeding
        1. Capillary
        2. Venous
        3. Arterial
    C. Shock

Treatment of Wounds. Dressings 1 hour

References: TM 8-220, pp. 128 - 130, 108 - 112 Questions 18 - 24

I. General Treatment of Wounds
    A. Procedure when bleeding is not severe
    B. Procedure when bleeding is severe

II. Types of Dressings Applied to Wounds
    A. Definitions
        1. Dressing
        2. Compress
        3. Bandage
    B. Classification according to sterility
        1. Aseptic
        2. Antiseptic

C. Classification according to moisture
  1. Wet
  2. Dry

III. Purposes of Dressings

IV. Types of First Aid Packets
  A. Small
  B. Large

V. Preparation of Wound for Dressing

VI. Procedure in Treatment of Wound, General

VII. General Principles of Treatment When Wound Appears Infected

Burns - 1 hour

References: TM 8-220, pp. 143 - 145 Questions 25 - 37

I. General Agents Causing Burns (Types)

II. General Action of Burns on the Body

III. Classification of Burns
  A. First degree
  B. Second degree
  C. Third degree

IV. Symptoms of Burns
  A. First degree
  B. Second degree
  C. Third degree

V. Treatment of Burns
  A. First degree
  B. Second degree
  C. Third degree
VI. Special Types of Burns and Their Treatment
  A. Burns of the eye
  B. Facial burns
  C. Burns of the extremities
  D. Chemical burns
  E. Incendiary burns

VII. First Aid Procedure at a Fire

Hemorrhage 1 hour

References: TM 8-220, pp. 131 - 136 Questions 38 - 47

I. General Discussion
   A. Definition
   B. Natural defenses against hemorrhage
   C. Artificial aids to natural defenses

II. Types of Hemorrhage
   A. Capillary
   B. Venous
   C. Arterial

III. Recognition and Treatment of Hemorrhage
   A. Capillary
   B. Venous
   C. Arterial

IV. Special Types of Hemorrhage
   A. Stomach
   B. Lungs
   C. Bowel

V. Practical Demonstration of Treatment

VI. Application of Treatment Procedures
   A. Tourniquet
   B. Pressure points
   C. Pressure bandages

Shock 1 hour

References: TM 8-220, pp. 136 - 137 Questions 48 - 54

I. Nature of Shock

II. Causes of Shock
   A. Injury
   B. Hemorrhage
   C. Heat (including burns)
   D. Chemical poisons
   E. Anaphylactic (serum) shock

III. Symptoms

IV. Treatment

V. Prevention of Shock

VI. Demonstration and Application of Practical Measures in Prevention and Treatment

FIRST AID AND MINOR SURGERY

Bandaging 1 hour

References: TM 8-220, pp. 85 - 87, 98 - 99 Questions 55 - 61

I. General Purposes of Bandaging

II. Materials Used in Bandaging
   A. Gauze
   B. Flannel
   C. Crinoline (for Plaster of Paris)
   D. Muslin
   E. Linen
   F. Rubber
   G. Elastic webbing

III. Types of Bandages
   A. Roller
   B. Triangular
   C. Many-tailed
   D. T-bandage
   E. Cravat
   F. Plaster of Paris

IV. General Rules for Bandaging
   A. Position and starting
   B. Tension
   C. Shrinkage
   D. Skin coverage
   E. Skin surfaces
   F. Toes and fingers
   G. Smallest diameter first
   H. Ending bandage
   I. Crossing bandages
   J. Bony prominences
   K. Removal of bandage

V. Preparation of Plaster of Paris Bandages

VI. Application and Removal of Plaster of Paris Bandages
   A. Application
   B. Removal

FIRST AID AND MINOR SURGERY

Bandaging 14 hours

References: TM 8-220, pp. 85 - 108 Questions - Practical

I. Students will be shown examples of, and will practice the application of the following types of bandages:

- A. Circular bandages
- B. Spiral bandages
- C. Oblique bandages
- D. Recurrent
- E. Figure-of-Eight
    1. Hand and wrist
    2. Forearm
    3. Elbow
    4. Knee
- F. Spiral reverse of arm
- G. Mitten
- H. Demi-gauntlet
- I. Gauntlet
- J. Spica
    1. Shoulder
    2. Groin
    3. Foot
- K. Foot, not covering heel
- L. Velpeau
- M. Barton
- N. Recurrent of head
- O. Crossed, of one eye
- P. Crossed, of both eyes
- Q. Sayre
- R. T-bandage
- S. Many-tailed
- T. Triangular
    1. Fronto-occipital
    2. Chest and back
    3. Brachial-cervical triangle
    4. Hand
    5. Foot
    6. Gluteo-femoral triangle
- U. Cravat
    1. Head
    2. Axillary

FIRST AID AND MINOR SURGERY

Questions

1. What is first aid?

2. Name some general conditions or accidents in which first aid may be necessary.

3. What are the general rules for first aid?

4. What is a wound?

5. Classify the wounds, according to the instrument which produced them or to their appearance.

6. List the general types of wounds.

7. What is a septic wound?

8. Tell what is meant by an aseptic wound.

9. Define poisoned wound.

10. What is an abrasion?

11. What is a lacerated wound?

12. What is an incised wound?

13. Describe a contused wound.

14. What kind of instrument would produce a punctured wound?

15. Name the complications of wounds.

16. Describe the general procedure followed in treating a wound in which the bleeding is not severe.

17. Describe the general treatment for a wound in which the bleeding is severe.

18. What is the difference between a dressing, a compress, and a bandage?

19. How may dressings be classified?

20. What are the general purposes of dressings?

21. Describe the different Army First Aid Packets, and their contents.

22. What is the general preparation of a wound for dressing?

23. What general principles of treatment are followed when a wound is infected?

24. What are the general symptoms or signs of infection?

25. List the causes of burns.

26. What is the general action of burns on the body?

27. Classify the burns as to the extent of injury produced.

28. What are the symptoms, and the treatment of a first degree burn?

29. What are the symptoms of, and the treatment for a second degree burn?

30. What are the symptoms, and the general measures of treatment for a third degree burn?

31. How would you handle a burn of the eye?

32. If your patient had burns of the face, how would you proceed to treat him?

33. Describe the general treatment of chemical burns.

34. What is the treatment for a patient who has grease or oil over a burn?

35. What type of burns do incendiary agents produce, and how are these burns treated?

36. What special precautions are necessary in treating burns of the extremities?

37. What general first aid measures might be useful at a fire?

38. What is hemorrhage?

39. What are the natural defenses of the body against hemorrhage?

40. How can we aid the body's natural defenses when hemorrhage occurs?

41. What are the types of hemorrhage, and how can we tell one type from another?

42. How is capillary hemorrhage treated?

43. How is venous hemorrhage treated?

44. What principles are followed in treating arterial hemorrhage?

45. What should be done for a patient who is bleeding for the stomach?

46. How can you tell whether a patient bleeding from the mouth is bleeding from the stomach or from the lungs?

47. How would you treat a patient who is bleeding from the lungs?

48. Define shock.

49. Describe briefly the nature of shock.

50. List the causes of shock.

51. What measures may be taken to ward off shock?

52. Describe the symptoms in a typical case of shock.

53. What is the general treatment for a patient in shock?

54. How would you treat shock during combat in the field?

55. List the general purposes of bandaging.

56. What materials may be used for bandages, and what are the advantages and disadvantages of each?

57. List the types of bandages according to structure.

58. Name the rules for good bandaging.

59. How is Plaster of Paris roll bandage prepared?

60. Describe the application of Plaster of Paris bandage.

61. How may hardened plaster of Paris bandage be removed?

BONE AND JOINT INJURIES

Introduction 1 hour

References: TM 8-220, pp. 146 - 149 Questions 1 - 6

- I. General Causes of Injuries to Bones and Joints
  - A. Direct violence
  - B. Indirect violence
  - C. Gunshot
  - D. Other causes
- II. Nature of Injury Produced - Definition and Brief Description
  - A. Fracture
    - 1. Simple
    - 2. Compound
  - B. Dislocation
  - C. Sprain
  - D. Strain

First Aid Treatment to Bone and Joint Injuries 1 hour

References: TM 8-220, pp. 146 - 149 Questions 7 - 17

- I. Dislocations
  - A. Causes and symptoms
  - B. Diagnosis
  - C. General treatment
  - D. Common types of dislocations
- II. Sprains
  - A. Causes and symptoms
  - B. Difference sprain and dislocation
  - C. General treatment
  - D. Common sprains
- III. Strains
  - A. Causes and symptoms
  - B. Diagnosis
  - C. General treatment
- IV. Fractures
  - A. General causes and symptoms
  - B. Diagnosis
  - C. Principles of treatment
    - 1. Treat shock
    - 2. Immobilize
    - 3. Protect wound

BONE AND JOINT INJURIES

Fractures 1 hour

References: TM 8-220, pp. 146 - 149, 112 - 113 Questions 18 - 28

I. Classification of Fractures
  - A. Simple
  - B. Compound

II. Classification According to Extent and Type of Injury
  - A. Incomplete
  - B. Complete
    - 1. Without displacement
    - 2. With displacement
      - a. Comminuted
      - b. Depressed

III. Complications of Fracture
  - A. Shock
  - B. Hemorrhage
  - C. Infection
  - D. Deformity
  - E. Loss of function

IV. Principles of First Aid Treatment
  - A. Simple fractures
    - 1. Splint
    - 2. Shock
  - B. Componud fractures
    - 1. Control bleeding
    - 2. Dress wound
    - 3. Splint
    - 4. Shock
    - 5. Tetanus

V. First Aid Treatment of Special Fractures
  - A. Skull
  - B. Spine
    - 1. Neck
    - 2. Back
  - C. Pelvis
  - D. Jaw
  - E. Ribs
    - 1. Not communicating with pleural cavity
    - 2. Communicating with pleural cavity (sucking wound)

BONE AND JOINT INJURIES

Splints 1 hour

References: TM 8-220, pp. 113 - 126 Questions 29 - 35

I. Basic Principles of Splinting
  A. Indications
  B. Extent of splints
  C. Position of parts
  D. Dangers of improper splinting
    1. Insufficient immobilization
    2. Incorrect size and length of splint
    3. Pressure over injury
    4. Forgotten tourniquet
    5. Others

II. Army Leg Splint
  A. Equipment necessary
  B. Procedure

III. Thomas Arm Splint

IV. Clavicle Splinting

Field Splinting 1 hour

References: TM 8-220, pp. 113 - 126 Question 36

I. Wooden Type Splints

II. Wire Splints

III. Metal Splints

IV. Other Improvised Splints

Hospital Care of Fractures

References: None Questions 37 - 42

I. Plaster of Paris Bandaging
  A. Indications
  B. Application
  C. Precautions

II. Balkan Frame Suspension
  A. Purposes
  B. Parts
  C. Operation of Balkan Frame

BONE AND JOINT INJURIES

Questions

1. List the causes of injuries to bones and points, giving examples of each cause.

2. Define fracture.

3. What is the difference between a simple fracture and a compound fracture?

4. Define dislocation.

5. What is a sprain?

6. What is a strain?

7. What are the symptoms of dislocation?

8. What do we find on examination of a patient with dislocation?

9. Describe the general treatment for dislocations.

10. What are the symptoms of sprain?

11. How would you tell whether a certain injury is a sprain or a dislocation on examination?

12. What is the general treatment for sprains?

13. What is the cause of strain?

14. What is the general care of a strain?

15. What are the usual symptoms of fracture?

16. What findings may help to tell whether a certain injury is a fracture on examination?

17. Give the general principles of treatment of fractures.

18. Classify fractures.

19. Classify fractures according to the extent of injury.

20. List the common complications of fracture.

21. Describe the first aid treatment of a simple fracture.

22. Describe the first aid care of compound fractures.

23. How would you care for a soldier with a fractured skull?

24. Describe the proper handling of a fracture of the pelvis.

25. Tell how you would apply first aid for a soldier with a broken neck.

26. Give the first aid treatment for a soldier with a broken back.

27. How is a fractured jaw treated when it is first seen?

28. How does the first aid treatment for a fracture of the ribs with the production of a sucking wound differ from the treatment of fractured ribs in which the pleura is not opened?

29. What are the reasons for the use of splints?

30. How far should a splint extend in a fracture?

31. In case of doubt as to position, what is the safest position in which to place a limb when fixing it in a splint?

32. What are the dangers of improper splinting?

33. Describe the steps in the application of the Army leg splint.

34. Describe the use and application of the Thomas arm splint.

35. What general procedure is followed in splinting the clavicle?

36. Name several ways of improvising splints using common materials.

37. When do we use Plaster of Paris bandage?

38. Describe the application of a Plaster of Paris cast.

39. How is a plaster cast removed?

40. What are the dangers in the improper application of Plaster of Paris splints?

41. Name the parts of a Balkan frame.

42. What is the principle of the Balkan frame?

OPERATIVE TECHNIQUE

Introduction 1 hour

References: TM 8-220, pp. 70 - 75 Questions 1 - 11

- I. Operating Room
    - A. Purpose
    - B. General arrangement
    - C. Lighting
    - D. Heat
    - E. Ventilation
    - F. Arrangement of furnishings
    - G. Cleanliness
    - H. Adjoining rooms
    - I. Personnel
- II. Terms Used in Operative and Surgical Technique
    - A. Sepsis
    - B. Asepsis
    - C. Antisepsis
    - D. Sterile
    - E. Unsterile
    - F. Suppuration
    - G. Gangrene
    - H. Putrefaction
    - I. Gas bacillus infection

Sterilization 1 hour

References: TM 8-220, pp. 75 - 80 Questions 12 - 26

- I. Methods of Sterilization
    - A. Mechanical
        - 1. Scrubbing
        - 2. Irrigation
    - B. Thermal
        - 1. Moist heat
            - a. Boiling
            - b. Free steam
            - c. Steam under pressure
        - 2. Dry heat
            - a. Cautery
            - b. Flame
    - C. Chemical
        - 1. Alcohol
        - 2. Iodine
        - 3. Mercury bichloride
        - 4. Carbolic acid
        - 5. Dakin's solution and chloramines
        - 6. Boric acid
        - 7. Formaldehyde
        - 8. Dyes

- D. Physical
  - 1. X-ray
  - 2. Sunlight
  - 3. Ultra-violet light
- II. Sterilization of Equipment
  - A. Large packs
  - B. Small packs
  - C. Instruments
    - 1. Ordinary
    - 2. Sharp
  - D. Gloves
  - E. Basins
  - F. Sutures
    - 1. Boilable tubes
    - 2. Non-boilable tubes
    - 3. Silk and linen

Surgical Equipment and Dressings 1 hour

References: TM 8-220, pp. 80 - 82 Questions None

- I. Surgical Dressings - Explanation and Demonstration
  - A. Materials used
  - B. Sizing
  - C. Sponges
  - D. Packs
  - E. Pads
  - F. Sheets and towels
  - G. Caps and masks
  - H. Operating suits and gowns
- II. Sutures and Ligatures
  - A. Classification of sutures and ligatures
    - 1. Absorbable
    - 2. Non-absorbable
  - B. Sizes and materials
  - C. Intestinal sutures
- III. Surgical Instruments
  - A. General quality
  - B. Routing care after use
  - C. Common types
    - 1. Scalpels
    - 2. Scissors
    - 3. Thumb forceps
    - 4. Mouse-tooth forceps
    - 5. Straight hemostats
    - 6. Curved hemostats
    - 7. Allis forceps
    - 8. Ochsner forceps
    - 9. Towel clips
    - 10. Rectractors
    - 11. Probes
    - 12. Directors
    - 13. Sponge holders
    - 14 Needle holders
    - 15 Needles
    - 16. Skin clips

OPERATIVE TECHNIQUE

Preparation for Operation 1 hour

References: TM 8-220, pp. 82 - 85 Questions 27 - 31

I. Responsibility of Personnel
  A. Surgeon
  B. Chief operating room nurse (nurse or soldier)
  C. Anesthetist
  D. Assistant nurse personnel (nurses or soldiers)

II. Rules for Scrubbing
  A. Remove street clothes and jewelry. Brush shoes
  Put on operating suit, cap, and mask
  B. Clean nails
  C. Wash hands quickly with plain soap and water
  D. Pick up sterile brush with forceps. Dip untoched end in sterile green soap, scrub for 3 minutes hand,fingers, and nails, paying particular attention to nails and between fingers
  E. Rinse in running water from finger tips to wrist
  F. Clean under nails with sterile orange wood stick
  G. Scrub tips of fingers and beneath nails for 30 seconds. Drop brush
  H. Take fresh sterile brush and scrub each part of hands and forearms, to 1 inch above elbow, scrubbing both hands equally for total time of 10 - 12 minutes
  I. (During and after this step, hands and forearms always kept in upright position). Rinse in running water from finger tips to elbows.
  J. Immerse hands and forearms in 70% alcohol
  K. Dry hands only with sterile towel
  L. Put on sterile gown. To be tied by assistant
  M. Powder hands with sterile talcum powder
  N. Put on sterile gloves
  O. If any delay, cover both gloved hands with sterile towel

III. Preparation of Room
  A. Instruments
  B. Lights
  C. Basins
  D. Packages
  E. Anesthesia preparations

IV. Field of Operation - General Rules for Preparation

OPERATIVE TECHNIQUE

Pre-operative Preparation of Patient 1 hour

References: TM 8-220, pp. 229 - 230 Questions 32 - 33

- I. General Preparation
  - A. Mental attitude
  - B. Completion of all diagnostic procedures
  - C. Completion of all specified treatment
  - D. Diet orders before operation
- II. Final Preparation
  - A. Preparation of Operative Field as specified
  - B. Evening care before operation
    - 1. Meal
    - 2. Fluids
    - 3. Diet
    - 4. Bowels
    - 5. Sedative
  - C. Morning care before operation
    - 1. Bowel care as ordered
    - 2. Food
    - 3. Fluids
    - 4. Care of mouth
    - 5. Sedative
    - 6. Operating clothing - gown, stockings, towel on head
    - 7. TPR
    - 8. Medication given as ordered
    - 9. Have patient empty bladder
    - 10. Mental comfort to patient
    - 11. Chart, Xrays, special operation sheets

Post-operative Care of Patient 1 hour

References: TM 8-220, pp. 230 - 234 Questions 34 - 45

- I. Preparation on Ward
  - A. Special recovery room
  - B. Preparation of bed
  - C. Preparation of bedside table
- II. Care of Patient on Ward
  - A. Transfer to bed
  - B. Preparation of bed
  - C. Preparation of bedside table
  - D. Observation of patient
    - 1. Tongue
    - 2. Color
    - 3. Breathing
    - 4. Vomitus
    - 5. Secretions
  - E. General care of room with patient in
  - F. TPR, blood pressure, charting

III. Post-operative Complications and Treatment
  A. Hemorrhage
  B. Collapse
  C. Fluid restoration - thirst
  D. Headache
  E. Backache
  F. Nausea and vomiting
  G. Distention and obstruction
  H. Pain and restlessness
  I. Rentention of urine
  J. Diet and bowel orders
  K. Pneumonia

Dressing of Surgical Wounds 1 hour

References: TM 8-220, pp. 235 - 236 Questions 46 - 61

I. General Preparation of Dressings
  A. Packs
  B. Metal boxes

II. Preparation of Dressing Cart
  A. Contents
  B. Arrangement

III. Preparation of Patient for Dressing
  A. General condition of room
  B. Screens
  C. Bed preparation
  D. Patient position
  E. Outer binders, bandage, adhesive

IV. Dressing - General Principles

V. Completion of Dressing
  A. Adhesive
  B. Binders

VI. General Rules for Adhesive Application
  A. First application
  B. Repeated application
  C. Abrasions or lesions of skin

VII. After-Care of Instruments and Cart

Anesthesia 1 hour

References: TM 8-220 - None Questions 57 - 62

I. General Discussion
   A. Definition
   B. Indication for anesthesia

II. Classification of Anesthetics According to Entrance of Drug
   A. Inhalation
   B. Rectal
   C. Gastric
   D. Intravenous
   E. Hypodermic
   F. Direct Application
   G. Spinal and caudal

III. Special Features of Inhalation Anesthesia
   A. Pre-operative care and requirements
   B. Post-operative features

IV. Spinal Anesthesia
   A. Procedure
   B. Post-operative care

OPERATIVE TECHNIQUE

Questions

1. Describe the general arrangement of an operating room.
2. How is an operating room lighted?
3. Describe the essentials of ventilation in an operating room.
4. What rooms adjoin an operating room?
5. Who are the usual personnel connected with an operating room?
6. Define sepsis.
7. Define asepsis.
8. What is an antiseptic? Give three examples.
9. What does the term "sterile" mean in surgery?
10. What is suppuration? Is it desirable in a wound?
11. What is gas bacillus infection, and why is it important?
12. List the main methods of sterilization.
13. Describe mechanical sterilization.
14. How do we use heat in sterilization?
15. Describe two practical ways of using moist heat in sterilization.
16. Describe the operation of an autoclave.
17. When is dry heat for sterilization especially useful?
18. Name several classes of chemicals used for sterilization.
19. What practical use do we sometimes make of sterilization by light? What type of light is used?
20. Describe the sterilization of large packs in the autoclave.
21. Describe the approximate time for sterilization of small packs in the autoclave.
22. How are surgical instruments sterilized?

OPERATIVE TECHNIQUE

23. What is the special treatment for sharp instruments in sterilization?

24. Describe the sterilization of rubber gloves.

25. What types of sutures are there? How are the different types sterilized?

26. Describe the routine care of surgical instruments after use.

27. What is the function and responsibility of the surgeon in the operating room?

28. What does the anesthetist do during operation?

29. List the rules for scrubbing before operation.

30. Describe the general preparation of an operating room before operation.

31. How is the operative field prepared?

32. What is the usual evening care before operation?

33. What important things are done in the morning care before operation?

34. What is done on the ward to prepare for the patient who is to come from the operating room?

35. Describe a post-operative bed.

36. In what position is the patient kept after operation?

37. What important symptoms would you observe in the immediate appearance of the patient after return from operation?

38. What are the signs, and treatment for post-operative hemorrhage?

39. Describe the usual administration of fluids after operation.

40. What is the chief cause of post-operative headache?

41. What is the best treatment for post-operative nausea and vomiting?

42. Describe the treatment for post-operative distention.

43. Tell about the general care of the bladder after operation.

44. Describe the usual care of the bowels after operation.

45. What disease often complicates inhalation anesthesia? What are the early signs of this disease?

46. Describe hyperventilation after operation.

47. a) List the contents of the dressing cart.
    b) Describe the setting up of the dressing cart.

48. How do you prepare the patient and his surroundings for wound dressing?

49. Who generally removes bandages, outer binders, and adhesive in dressing wounds?

50. Who does the actual dressing?

51. Who often completes the last steps in wound dressing?

52. How should adhesive tape be removed?

53. What solvents may aid in the removal of adhesive tape?

54. When a wound must be dressed repeatedly, what may be done with adhesive tape to protect the skin from undue irritation?

55. What may be substituted for adhesive when a wound must be dressed frequently?

56. Describe the care of the instruments and soiled dressings on the dressing cart during and after dressing rounds.

57. What do we mean by anesthesia?

58. What are the general indications for anesthesia?

59. Classify the anesthetics according to the entrance of the drugs into the body, and give an example of each main class.

60. What special features of pre-and post-operative care are important when a patient has had inhalation anesthesia?

61. Describe the general procedure in spinal anesthesia.

62. What features of post-operative care of spinal anesthesia patients are important?

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